

73.

Waverly 1904

Carroll 1904

Conifers

Jiffin-Annawan etc

Hills - 1904

Truhey 1904

Harrison co. - 1904

Loveland - 1904

Arion - 1904

Monroe Top,

Carroll to Harlan

1904
Eagle to Omaha
1904

cut along edge. W. of

course

One part W. of North River.

Look out from road on drift

ascending horizon.

A narrow cut a mile or two

W. in the lower.

then the river cuts them

light drifts. Mountain

(Chickamauga?) & then on

top. See there

Two big cuts right E. of

ancient. Along river they

all the way but are easily

ascended from the east

W. of Chickamauga a mile and then some

from 2.5 miles a good outcrop of rock

also some lower exposures.

E. of town - fine for sandstone.

Start of horizontal line down to some

Obežník vzhled V. Šmída

Pr. Václavík v 84 letech
vzrostl prohlánil že co
by Šmída přivodil
napadl že křesťan
bylo:

Pratří platte, mlatu
platit, mlatu platit

4

5

Prairie - Hills - July 2 - '04

- fl. ~~Asclepias~~
 fl. Yarrow
 fl. Rudbeckia hirta -
 fl. Agropyrum -
 fl. Lysichiton virginica -
 fr. Potentilla canadensis -
 fl. Polygala sanguinea -
 fl. Lobelia spicata -
 fl. Rumex acetosella
 fr. Pycnanthemum ^{flexuosum} ~~linifolium~~
 fl. Oenothera annulata -
 fl. Erigeron ^{ramosus} (short hairs)
 fl. Ranunculus
 - Oenothera linnæi -
 - Salix ~~purpurea~~
 - Lespedeza capitata
 fl. Rosa arkansana
 fr. Ceanothus americanus
 fr. Smilacina stellata
 - Comandra umbellata
 fl. Asclepias purpurascens
 - Petalostemon violaceus
 fr. Aschra hispida

- Lepachys pinnata
 fr. Dodonaea viscosa
 - Euphorbia corollata
 fr. { Geranium maculatum
 ^{Filla}
 Bass wood
 Corylus
 Hazel
 Vitis
 Wild grape
 Ampelopsis
 Log. weed
 - Pycnanthus alba
 - Veronica virginica
 - Helianthus scaberrimus
 - Baptisia (smooth)
 - Monarda scabra
 - Coriopsis baptisia
 fr. & fr. Kniga -
 - Galium - ?
 fl. Anemone canadensis
 fl. Lilium philadelphicum
 fr. Polygala senega
 fr. Pedicularis canadensis
 fl. & fr. Phlox pilosa
 - Smilax herbacea
 fr. ~~Thalictrum~~ aureum

fl.

*Specularia perfoliata**Artemisia ludoviciana**Lactuca*

Old Man's creek

Alluvial timber July 2-'04

*Quercus rubra**" velutina**Sparganium**Rubus villosus**Dracopis**Pyrus ioensis**Carya**White Hickory**Petula**Black Birch*

fl. & fr.

*Cornus amomum**Salix cordata**Ulmus**White Elm**Platanus**Coccoloba**Blackberry**Fraxinus americana**Carya amara**Quercus palustris**" platanoidea**Crataegus mollis* (large, large)*" coccinea**" crugalli**Quercus macrocarpa*

22

" imbricaria

26 -

*Rhus radicans**Vitis riparia**Ulmus fulva**Fraxinus viridis* (?)

30

*Cornus paniculata**Sambucus hispida**Menispermum canadense**Sambucus canadensis**Prunus americana*

35

Rosa
*Ambrosia quinquefolia**Salix nigra**Acer*
*glabrum**Quercus alba**Zanthoxylum americanum*

40

*Populus tremuloides**Celtis occidentalis**Lilium americanum**Eurogymnus atropurpureus**Juglans cinerea*

45

*Morus rubra**Ribes* ^{*gracile*} ~~*gracile*~~*Populus monilifera**Prunus americana*

acres C.R. & P. east.

July 14-1904 - Prairie

18

19

Prairie ridges in woods 23
 July 16 - 1904

Asclepias tuberosa -
Euphorbia corollata -
Geranium leucopetalum
Oxybaphus myrsinifolius
Petalostemon candidum -
Monarda scabra
^{Prunella}
Echinacea angustifolia
Ruellia ciliosa
Aster novae-angliae
Erigeron cylindricus
Achillea millefolium -
Comandra umbellata
Kuhnia eupatorioides -
Silphium integrifolium
Lepachys pinnatifida
Petalostemon violaceus
Coccyzus palustris
Asclepias ^{floridana} *floridana* -
Rudbeckia hirta
Ceanothus americanus
Rosa woodsii (?)
Hemerocallis
Dodecatheon meadia

Perfideya capitata

Erigeron annuus —

Gal. tr. tr.

Coluber virgatus

Amphibia commun

Scutellaria parvula

~~Amorpha canescens~~

Order arrived.

Goldf. muscivora

Rediviva canadensis

Phlox pilularis

Famidia

Zamia integrissima

Salicaria viridis

Androsace virgata

alluvial - mostly flat

Setula nigra

Arundinella latifolia

Roller

1. India

Ostrya virginica

Carya americana

July 1st 1881

Peer machine

Cratogeomys merriami

1. *Quercus*

W. B. - Feb. 2

Tilia americana

My dear Miss -

Alnus sinuata

Meridian

Fraxinus quercifolia 2

Case

Cell.

bleiden. 4c

Wittgenstein

Casey

Frederica

Chrysomelidae

~~Sambucus canadensis
 Ribes gracilis ?
 Quercus macrocarpa
 Corylus
 Juglans
 Camptocarpus
 Juglans
 Cystopteris crux-galli
 Cypripedium
 Rhus vaticana
 Equisetum~~

Oct 8-1904

Waterville - Ranby trip
 First cut out on electric
 line towards Glasgow
 shows only Devonian
 drift.

This is the only cut of
 consequence between Waterville
 + Glasgow.

The first cut beyond
 Glasgow is Devonian
 with about a foot
 of fine black M.C.,
 the 2nd cut is same.

1st cut beyond Denver is
 about same.

1st cut W. of Denver Jr.

N. side of cut.

soil 2 ft.

Devonian drift 4 ft. a

200 ft long

The boulders
 the rock is concentrated along
 line a. (See photos -

S. side of cut about same, See sample
 & note.

The 2nd long cut W. of
 Denver Jr. is just like of
 cut 1 - they join, - &
 shows this

soil 1 ft.

fine boulder



(See photos - one out of focus)
 On N. side about 3 ft of

drift are exposed

The boulders are

mostly

On S. side about 5 ft

of fine clay is exposed

This is a pointed (boulder)

clay, with not much pebbles

& boulders drift. The

line between it & the

Devonian is not always

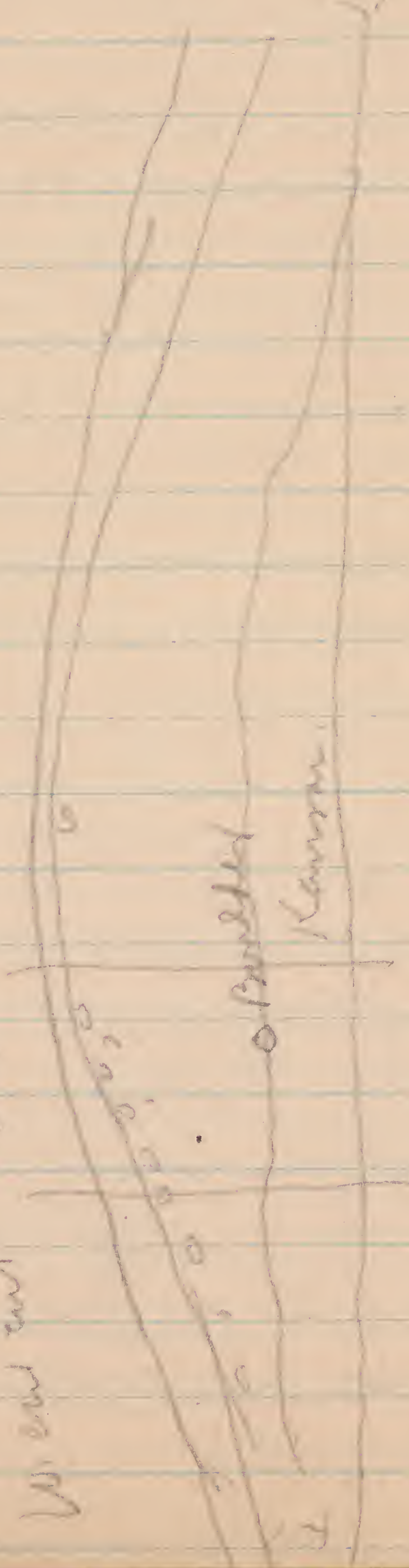
sharp, there being a

mixing of blue Kansan
 + yellow Devonian for 2 to
 10 in.

This cut is through a gentle swell -
about 1/2 way between Kanran & Kan
1/2 mile

see photo

We cut out



The brown tapers to W. so
that it is hardly 1 ft thick,
some 10. and there are pockets of red sand
in blue drift (in its lower part)

The Kanran has a good
many boulders, some large.
Some are nicely planed.

The big cut (3rd) 2 mi
W. of Denver for 1/2 mi
a mile (1/2 mi) from No. 2,
shows as follows.

soil 1-2 ft
about 6 ft
brown - yellow -

Blue / Kanran clay & pebbles
2-4 ft

yellow, hard drift
with pebbles.

The line between the
lower yellow layer &
blue layer is sharp &
evident, the blue
shades (or mixes) upward
into the upper yellow layer
(see samples of clay)

The same is noticeable
on the N. side of
cut.

The blue layer has few
pebbles in it, & in
one place shades also
into lower yellow layer.
In the lower yellow layer
I found an occasional
very rotten dark granite
pebble or small boulder,
but most of the pebbles
were pretty fresh.

The blue layer has very
few pebbles in it, & they
often pretty fresh.

The pebbles in the part
are fresh.

Is not the blue part
merely Kansan worked
over by the Denudation?
The west end of the big
cut shows a sort of
thinning out of the

blue layer, & its mixing
(inter laminating?) with the
upper & lower yellow layers.

The next smaller cut, just
beyond, shows about same.

The next one (with overhead
bridge) just beyond shows
blue layer high up, upper
yellow being only a couple
of feet. The blue is
here quite thick at E.
end, but in middle it
is high up 4 m. from
2 ft. to only a few inches.

It is all irregular &
mixed almost to the top of
the sand part, but there
are sharp lines here
& there.

This is on N. side. On S.
side the blue layer

thins out even more, &
seems to disappear to
west.

at the next arch bridge
there is another cut (6)
which at E end shows
blue clay at base +
iron ore on it, but
just beyond bridge the
blue clay runs up from
base to within 6 or 8 ft
of the top.

The cut runs irregularly
a mile toward next arch
bridge.

Just beyond 2nd
ridge on S side
there is loose
limestone exposed
by way up the cut
(see + piece)

Blue clay is exposed
at base on N.
side, & contains
blocks of weathered
limestone.

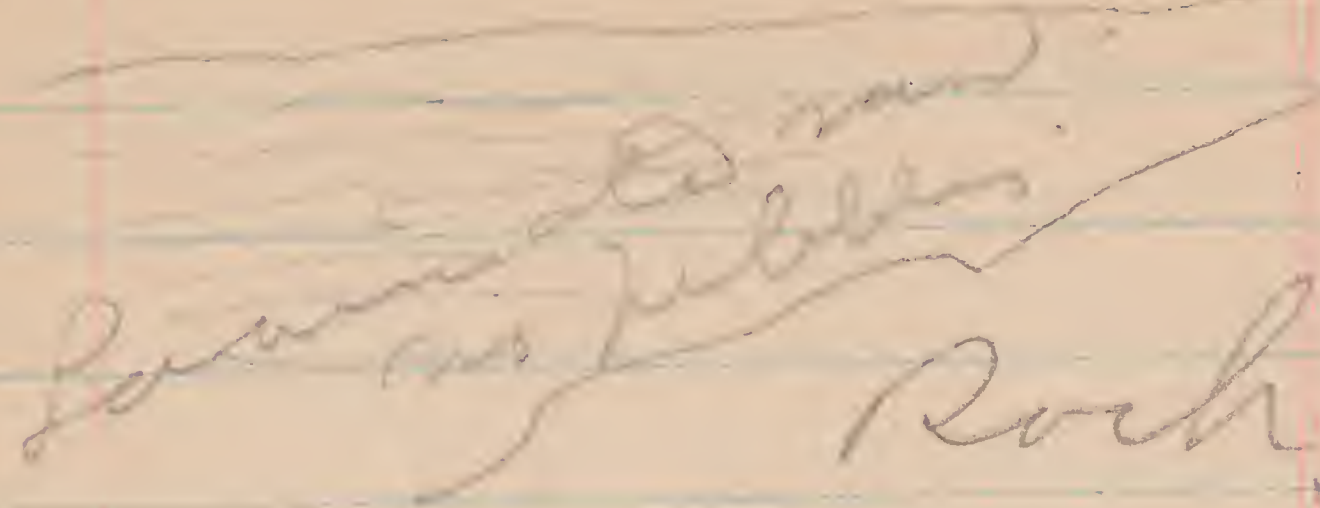
This cut, or rather a
series smaller (connected
with it) runs toward W.
and into bed rock, which
has a red gravelly layer
just below it in place.

The drift practically
runs out at W end.
The cut at 3rd arch bridge
is practically all in rock.

A little red dressing
Cut 8 at 4th arch
bridge, is through
rock. Both 7 & 8
have top dressing of
soil 1-2 ft & 5
have very thin veneer
of drift.

Next (last) arch bridge
cut has similar veneer &
fossiliferous rock.
at W end of this cut
right by river there
is limestone sand

W


 sand
 pebbles
 Rock

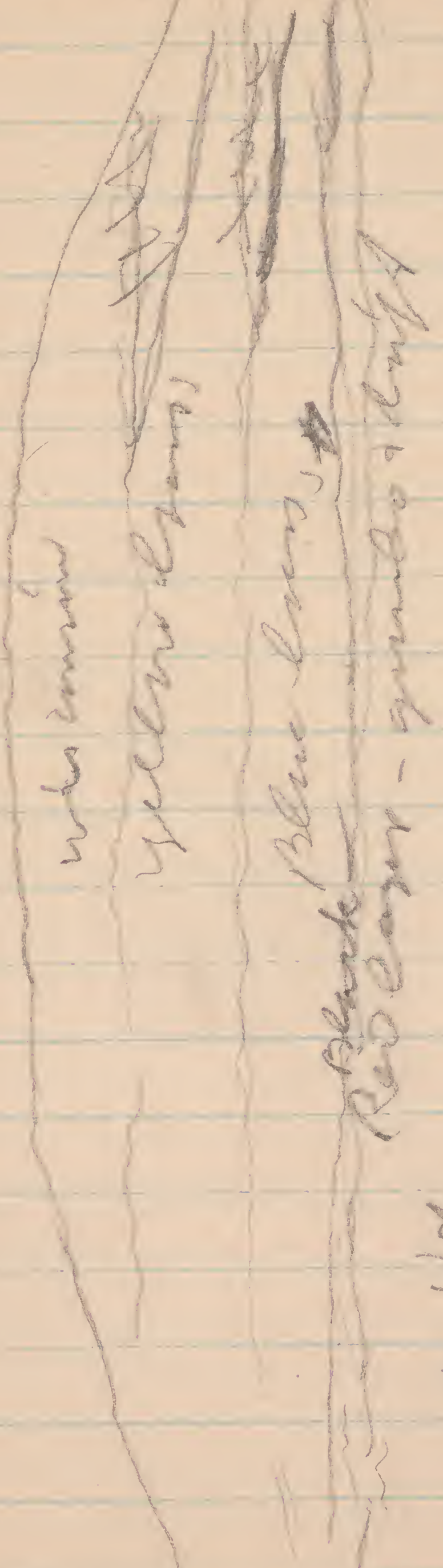
all the way to Dunes
 in part covered with pebbles,
 the surface is much
 like Kansan - but
 also evidently to
 underlying rocks

In Madison Twp
 5 of J. W. Hays there
 has been a permanent
 pond on high ground.

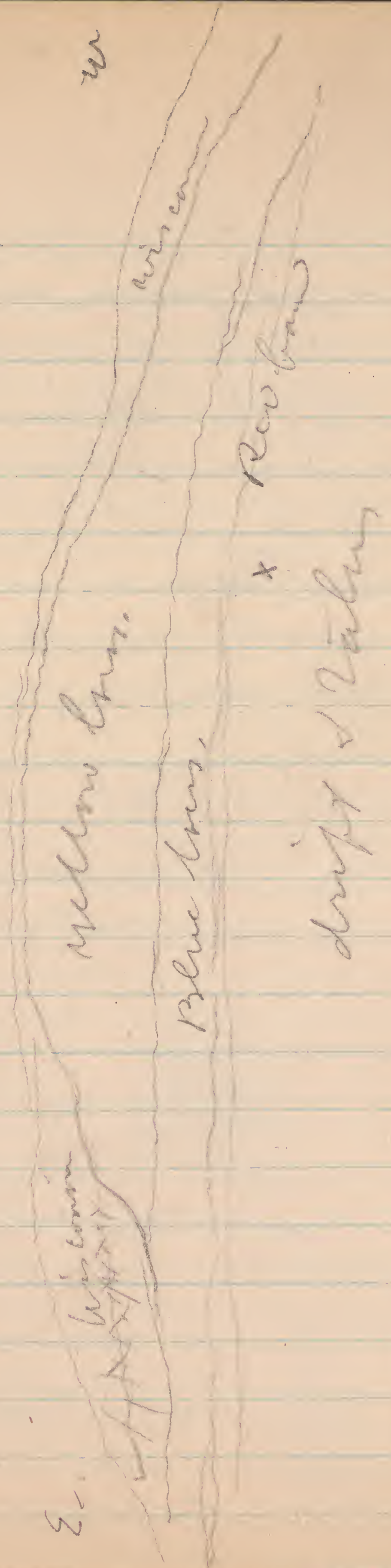
38

39

W C. G. W. cont. E. of
 out 5 1904



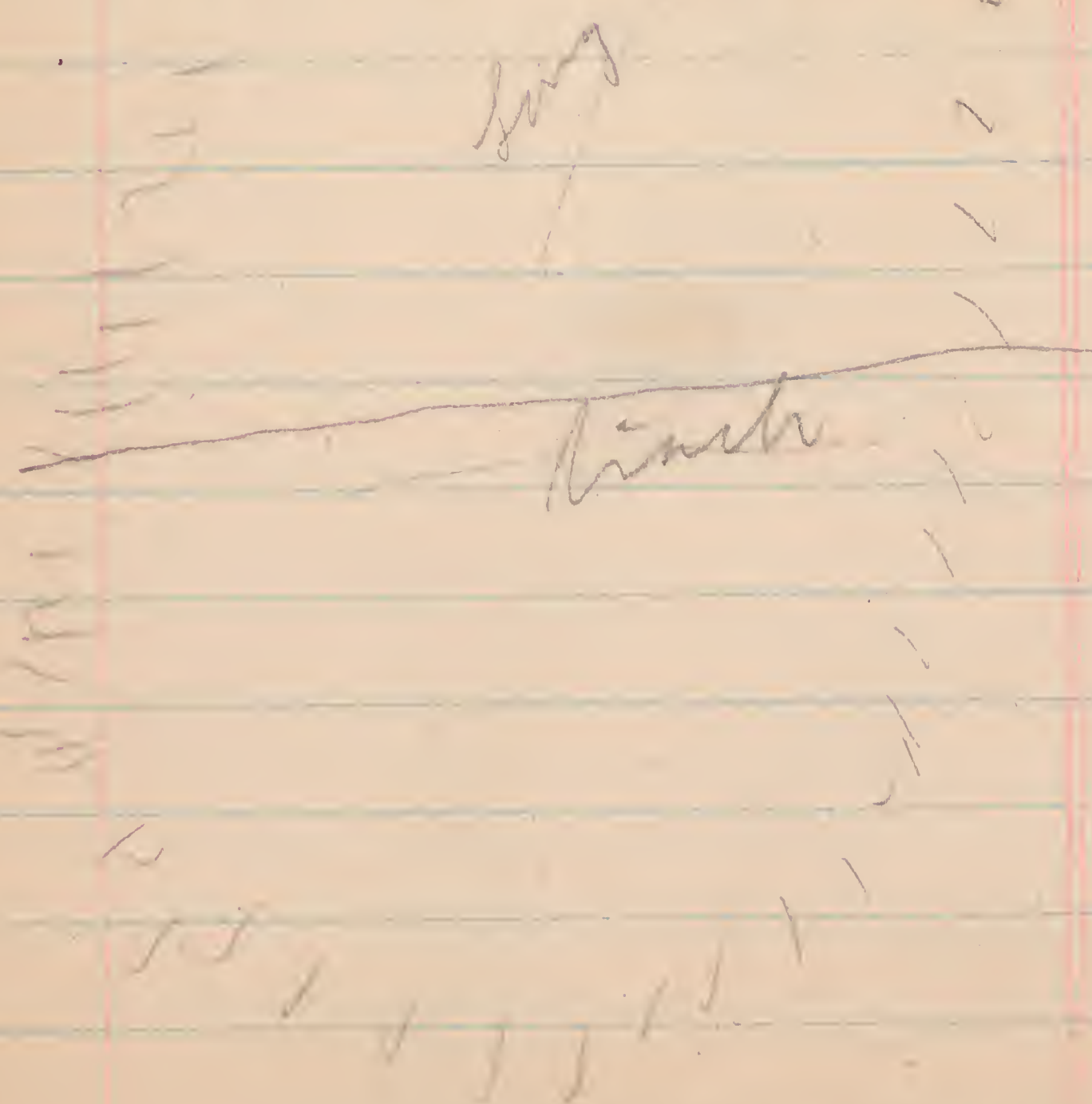
Drift.
 Trach.
 This is not all clear - as the wash & plants show it.



Drift.
 Trach.
 about 2 x from brown slipper 3 ft.
 yellow loam
 blue loam
 red loam

The yellow loess (upper) shows
 the same lamination
 parallel to face of bank,
 as if the whole thing
 had been settling.
 The lower iron band in
 blue loess shows
 lamination in places
 which looks like water
 lamination.

The cut is across ridge



The long low cut east
 is in drift - (the
 lower drift) with
 about 2 ft of block
 soil on it.

The bluff on the north
 is 15 or 12 ft higher than
 on S. side.
 On N. side, drift is exposed
 about 12 ft & it is
 much like Lovelock - heavy,
 small pebbles, but
 probably redder.

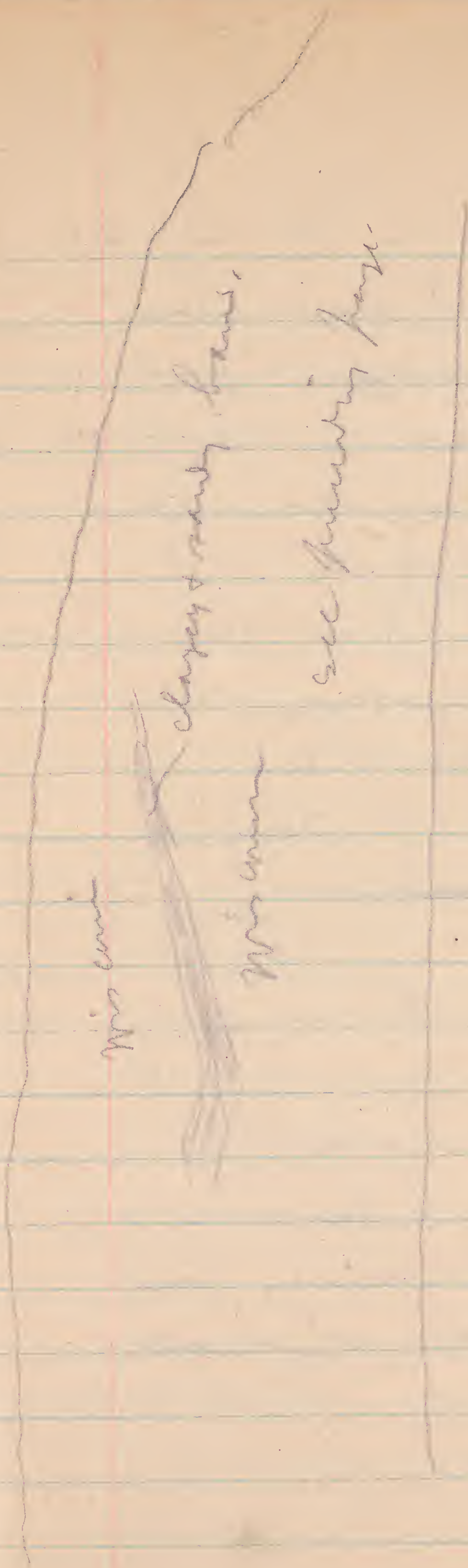
On the side the
 lower part of gravelly
 layer looks exactly
 like Lovelock gravel
 & has a few pebbles.

See notes
 500 pages further
 on.

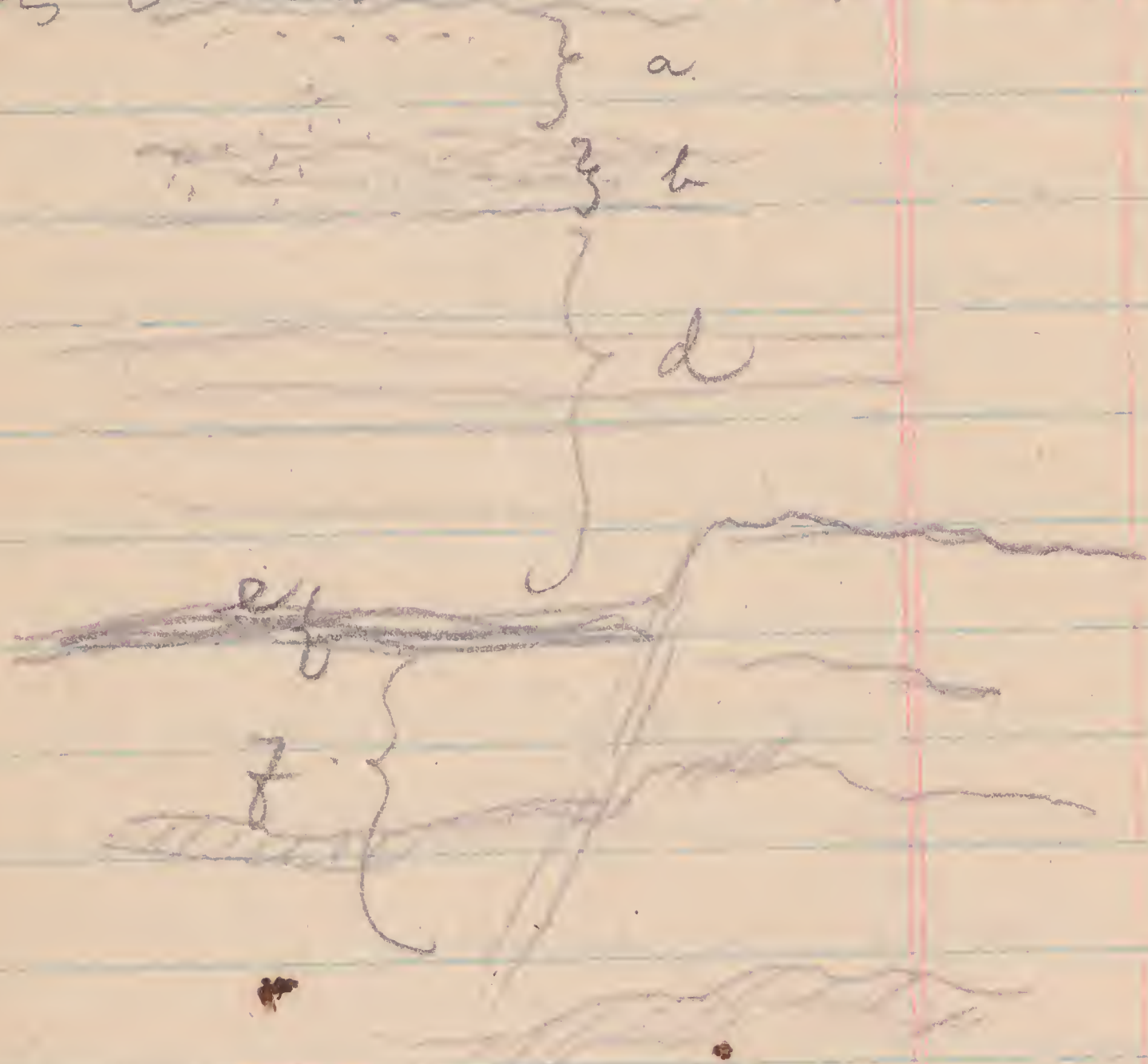
Carroll co
Sep. 30-1904

1st cut E. of Lanesboro -
about $\frac{1}{2}$ mi. east.
20 feet deep, & over $\frac{1}{2}$ mi
long. Shows light Wisconsin
drift throughout - Very
few larger boulders appear.
On E. side - near South end
of cut, there is a narrow
band (see figure) made
up of fine material, occasionally
running into sand, which
is somewhat loess-like, but
more like water laid stuff.
It has an irregular ^{very} dark
(iron?) band just above. The
drift above & below seems
to be Wisconsin, with
a little more clay above.

For W. side see next page.



On W side the cut
shows a curious band
of loess (?) ~~weathered~~ banded
with iron. The loess
is bluish - See photo.



a - top - mostly fine sand,
hard. - there are a few
small pebbles - 1/2 in.

The layer is about 4 ft. thick
b - is about a foot of
transition - mixed clay
+ sand - hard.

d - is 3 ft. or more thick &
is loess (?) with bands 1

(The red bands in d are more
sandy - much as in places.)
iron. I saw fragments of
shell which may have
come from this, - they were
on surface -
e) is a band of red (dark)
sand - 3/4 - 2 in wide -
f - is mixed clay + sand
grading into material
with pebbles - Wisconsin
drift -

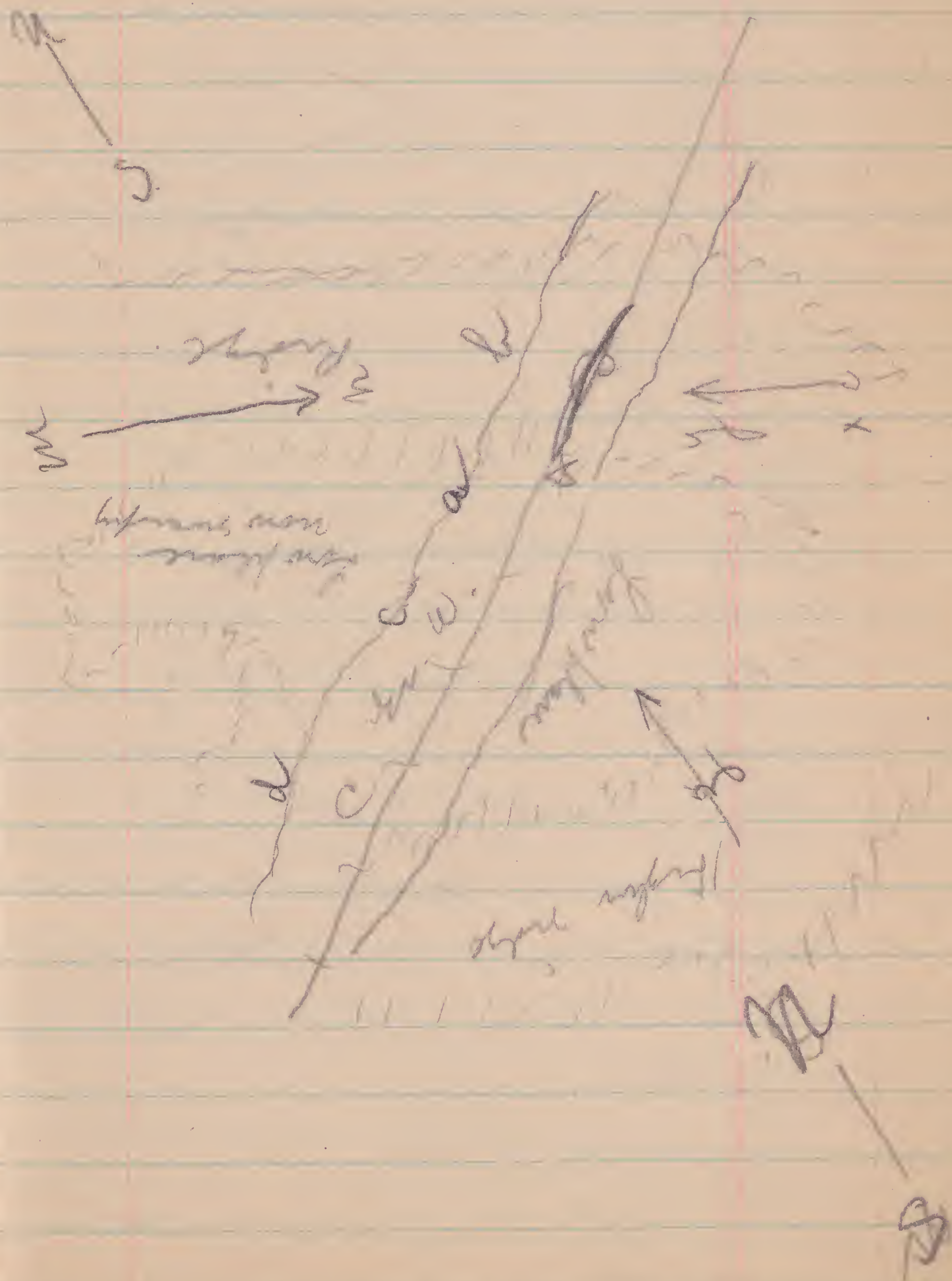
The loamy layer d
stands weathering better &
stands vertical - It shows
on rock face very distinct
lamination.

The layer d has numerous
small nodules (see spec.).
This is evidently bottom of
old pond - It runs up
as well on top ends
(See diagram for next page.)



There is a distinct sandy layer - 2-4 ft deep (including soil) on top. To left (S.) of c. + to right (N.) of (e) the loess runs up + out, as though the little log had continued under the present hill, & the sand had blown in under either along NW or SE as from 3.

The top of the ridge through which cut is made shows following topography.



This was evidently old
pond into which dust &
sands were blown &
washed from higher
ridges.

The exposed bottom of pond
is about 275 long. It
is irregular

There are a few small
pebbles above loess, but
these could have been blown
along surface or washed
in.

Position is found all
through - scattered - the
loess - see spec.

See spec. of clay, nodules
& tubules

The depth of the cut at
the deepest place is about
22 ft. - this along
where pond was.

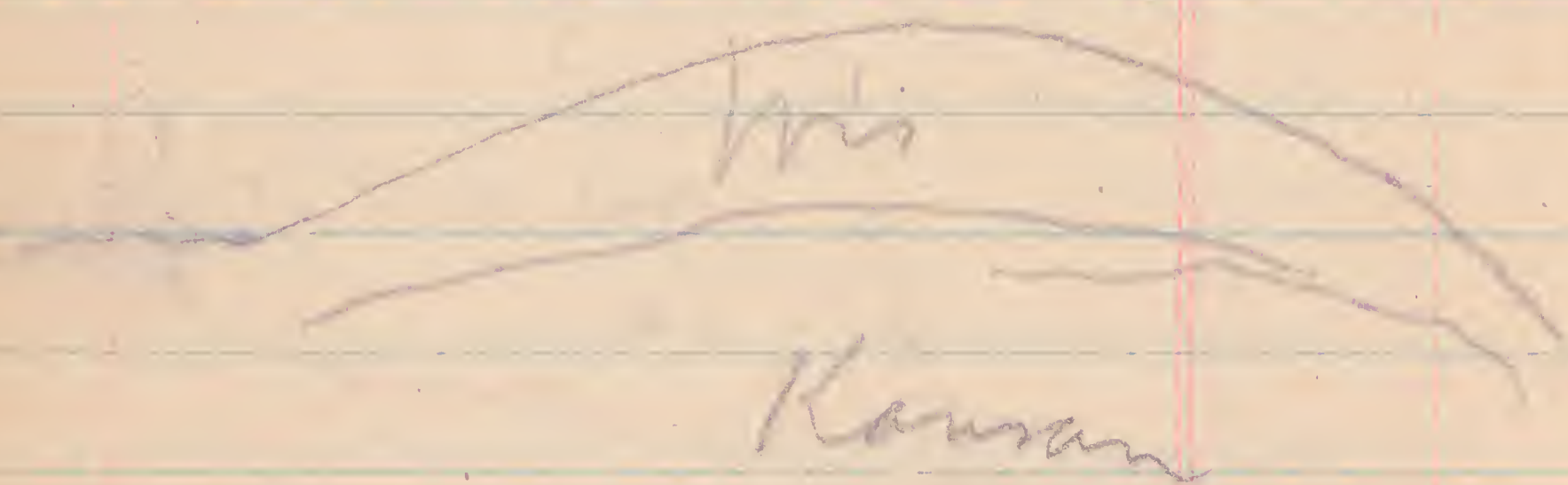
Either side of the ends
or edges of the pond
loess the Wisconsin drift
comes right up to the
hard sand layer. No
loess intervenes.

As far as I could see
the lower part is all
Wisconsin - The talus
covers about 1/4 of it,
but as far as I could
see it is Wisconsin with
few large boulders
(1 ft. -)

The country both sides
of this ridge is flat

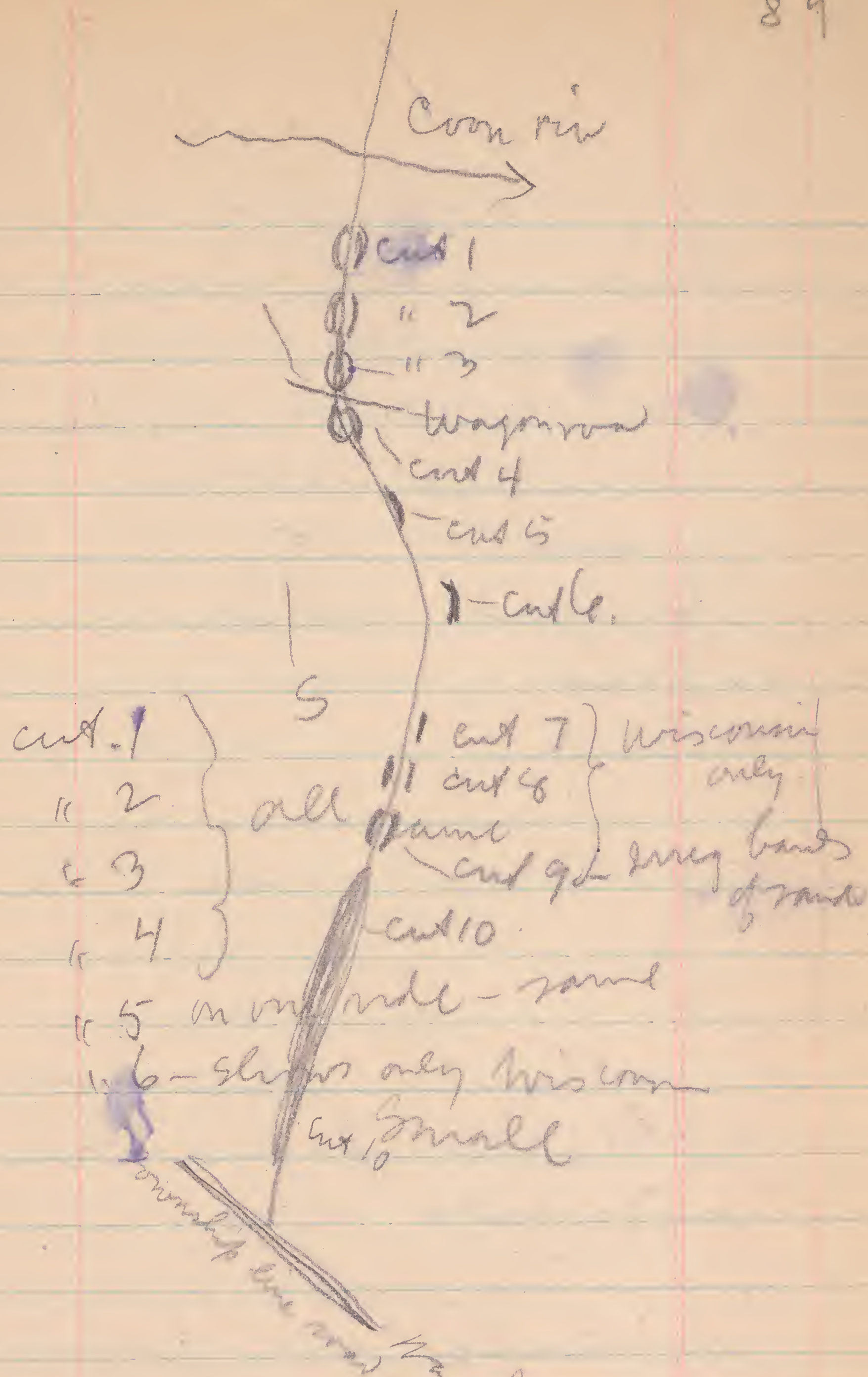
The 1st cut. S. of Coon
river. (see photo - looking
E. or N.)

This is over 30 ft deep
& shows Wisconsin
(yellow) above, &
the blue drifts, Kansan
below.



In places it appears that
the yellow & blue mingle
& interstratify, but there
are slides - I dig
into same.

Down narrow fissures
zone between the two
drifts. No cross.
Wisconsin is 6 or 8 ft deep.



No. 10 is a low long cut. In
the lower part it shows here & there
a bit of Kansan. In places
there is hard fine sand above
the Wisconsin with a distinct
ferritic zone between.

In a number of places
the deposit is clayey, &
the weathered surfaces
show fine stratification.
It is wavy & irregular.

The cut is partly overgrown
& slumped, but what
shows is mostly Wisconsin.
This is a mucky, mucky place.

All the way to Lidderdale
there are low cuts in
the Wisconsin plain.
Most of them show from 1
to 2 $\frac{1}{2}$ feet of fine black
soil on top.

Lidderdale is on a slight
swell in the Wisconsin prairie,
the RR. dropping both
ways. It is, however,
so flat that swamps
are all around the
village.

As I look toward Carroll
(smoke stacks are visible from
depot at Lidderdale)
it is evident that a low
ridge extends between
Carroll & Lidderdale.
The RR. drops toward
the ^{base} ridge & then rises
again.

Oct. 1-1904

Between Logan & Mo.
Valley - on N. side, is
a large arch, - 2
ridges running down
the general slope are
covered, & so are the
intermediate & adjoining
valleys. The trees toward
top of the general slope
& on tops of both of the
ridges seen thin &
small, - & are not extensively



Loveland, Ia. Oct 1-04
Bluff N. of town & d.
road. Road runs at
base of bluff between it
& Mingo river, which is
probably $10 \frac{1}{2}$ ft. below road.

At S. end there appears
about 100 feet of a deposit
which is clayey, full of
pebbles (see spec.) & thin
nodules - It forms the
face of S. end of exposure
& as you go north it
dips down & last is
filled over it.
The lower all base (see spec.)
is very fine & hard, it
contains some very large nodules,
some 7-8 in long. These
form a layer & cover
the surface or in drift,
but not are just above - only
in very lowest part of bed.
There are no shells in this lower layer

The drift is bluish & yellow - rather mixed & mottled. Some of the boulders exposed are over a foot long, but there are none - the whole face of drift is spotted with the lime nodules - each of which leaves a gleaming lining in cavity when taken out. Some of the boulders (round ones) are very angular, & the smaller pebbles are more or less rounded - many of them.

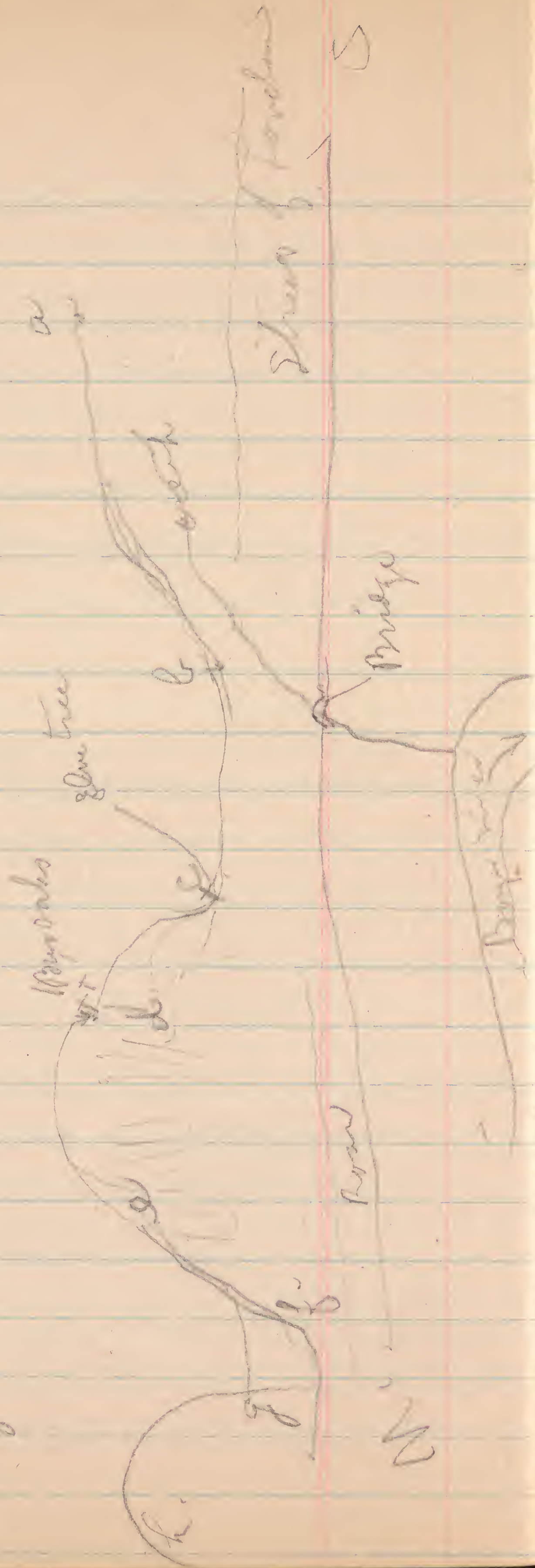
No shells appear in the drift, but in one or two places I saw fragments of shells in the overwash, from the loess above. The greater part of the drift is yellowish with a bluish gray tint, and is flaked & scales off all over the

face, while the loess breaks vertically into layers which present smooth faces.

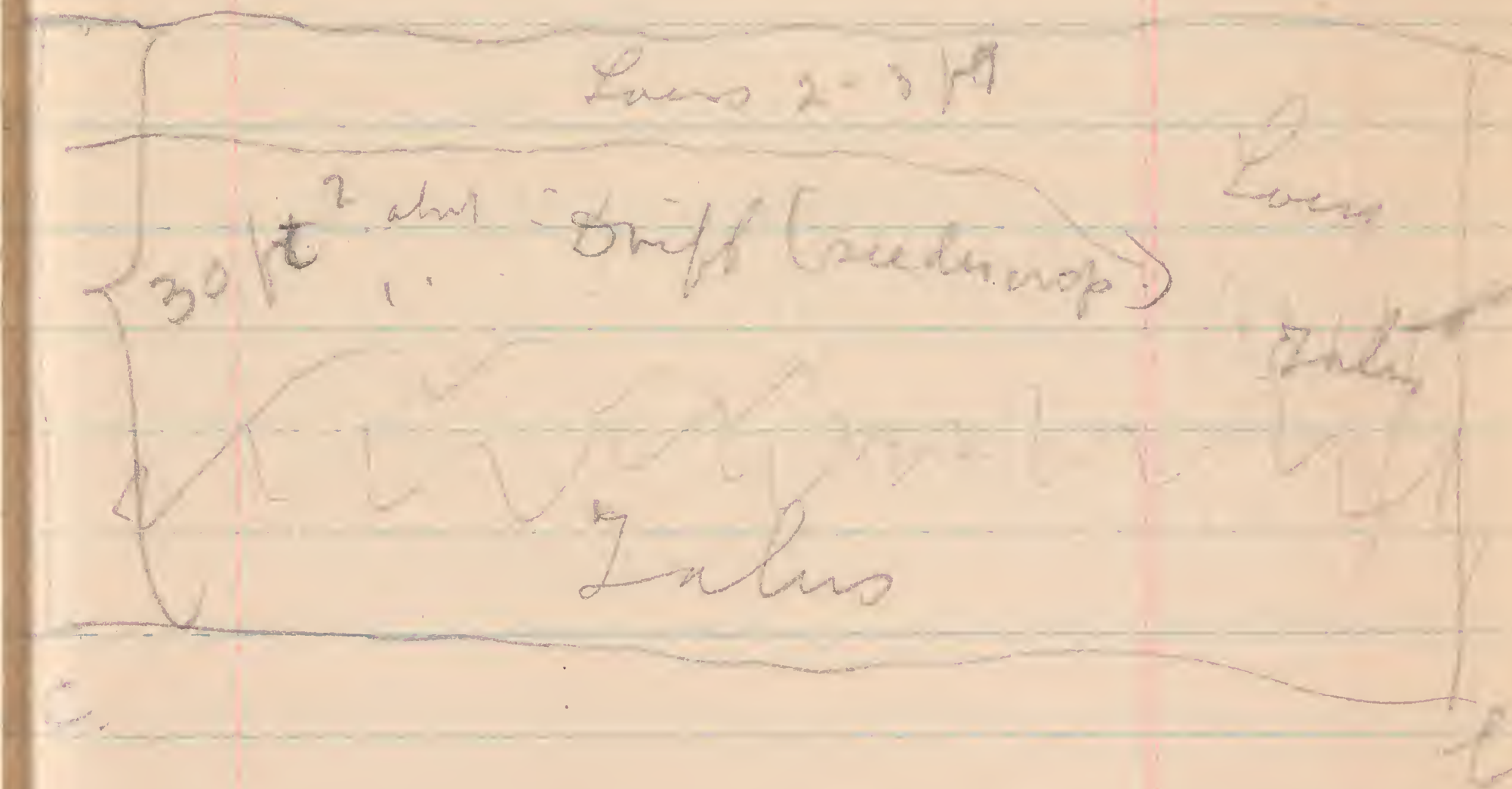
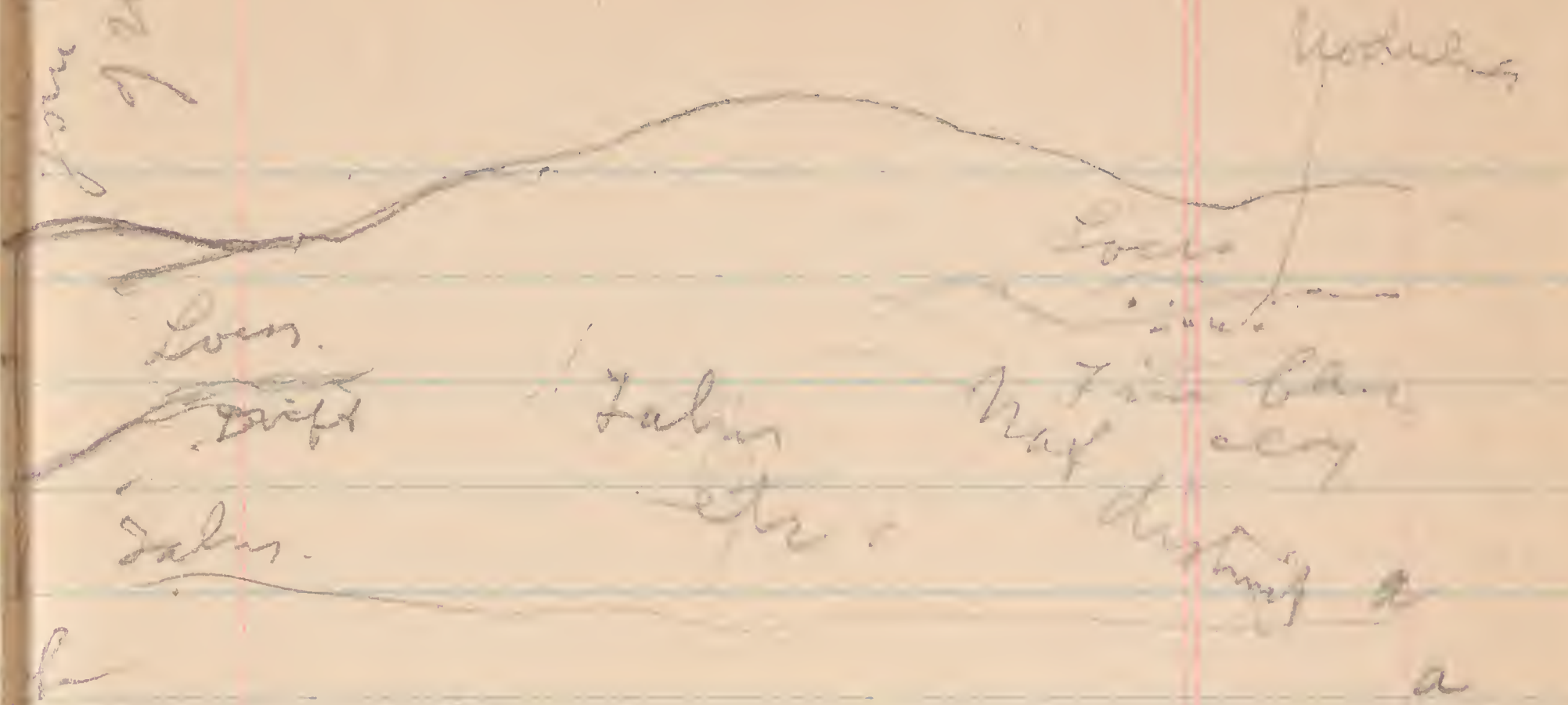
The drift is also vertically marked by root marks - iron following the drift. This lower part ^(drift) does not look like loess at all. The line between the drift & loess is mostly quite sharp, & sometimes only for a very short distance a few inches, is there any difficulty in distinguishing between them. The lower (S) end of bluff is lower & turns to following a little tributary of the river (see map on next page)

a-b about 200 ft +
 b-c " 150 ft.
 c-d " 50 ft.
 d-e " 150 ft.
 e-f "

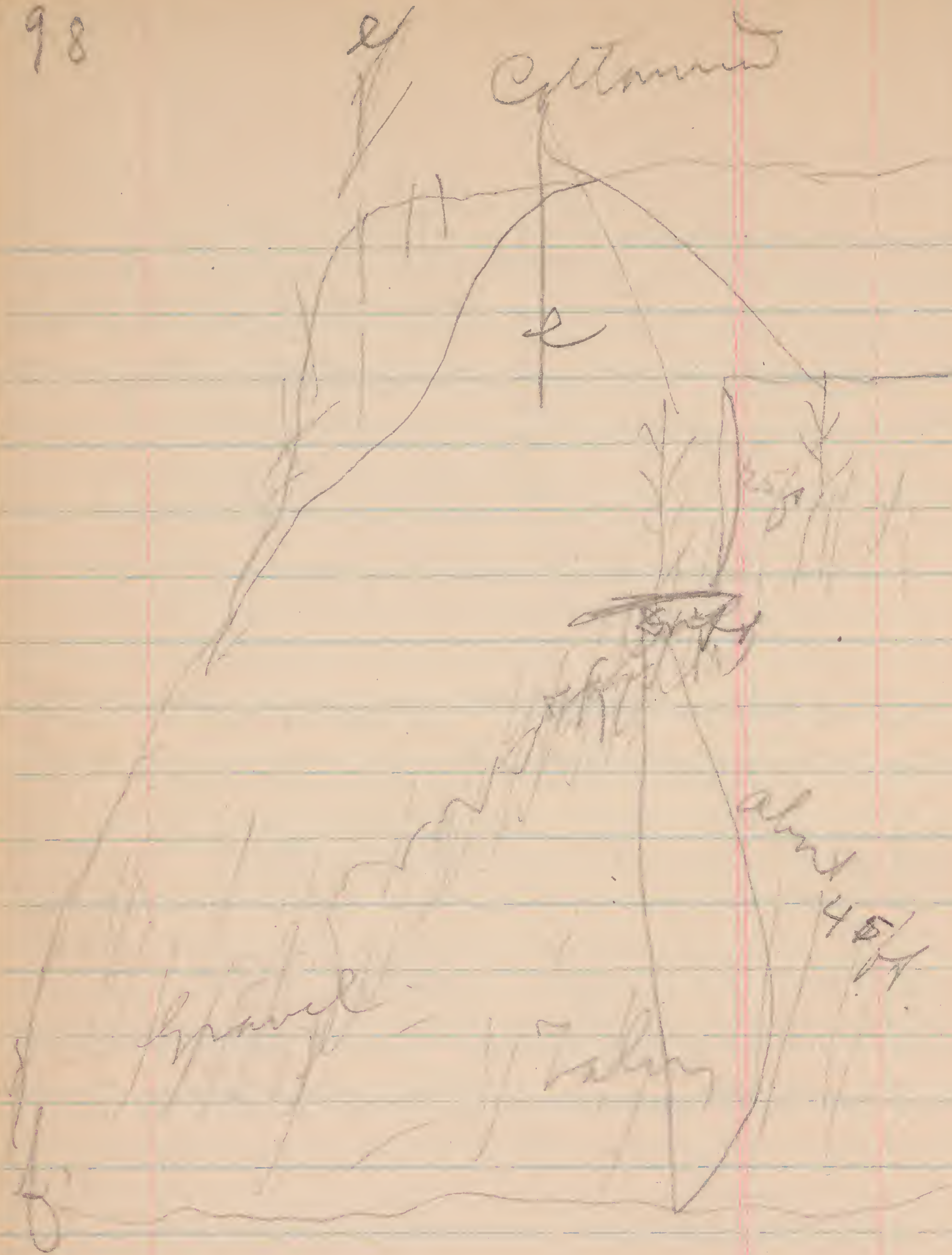
The line above shows the
 position of level (found)



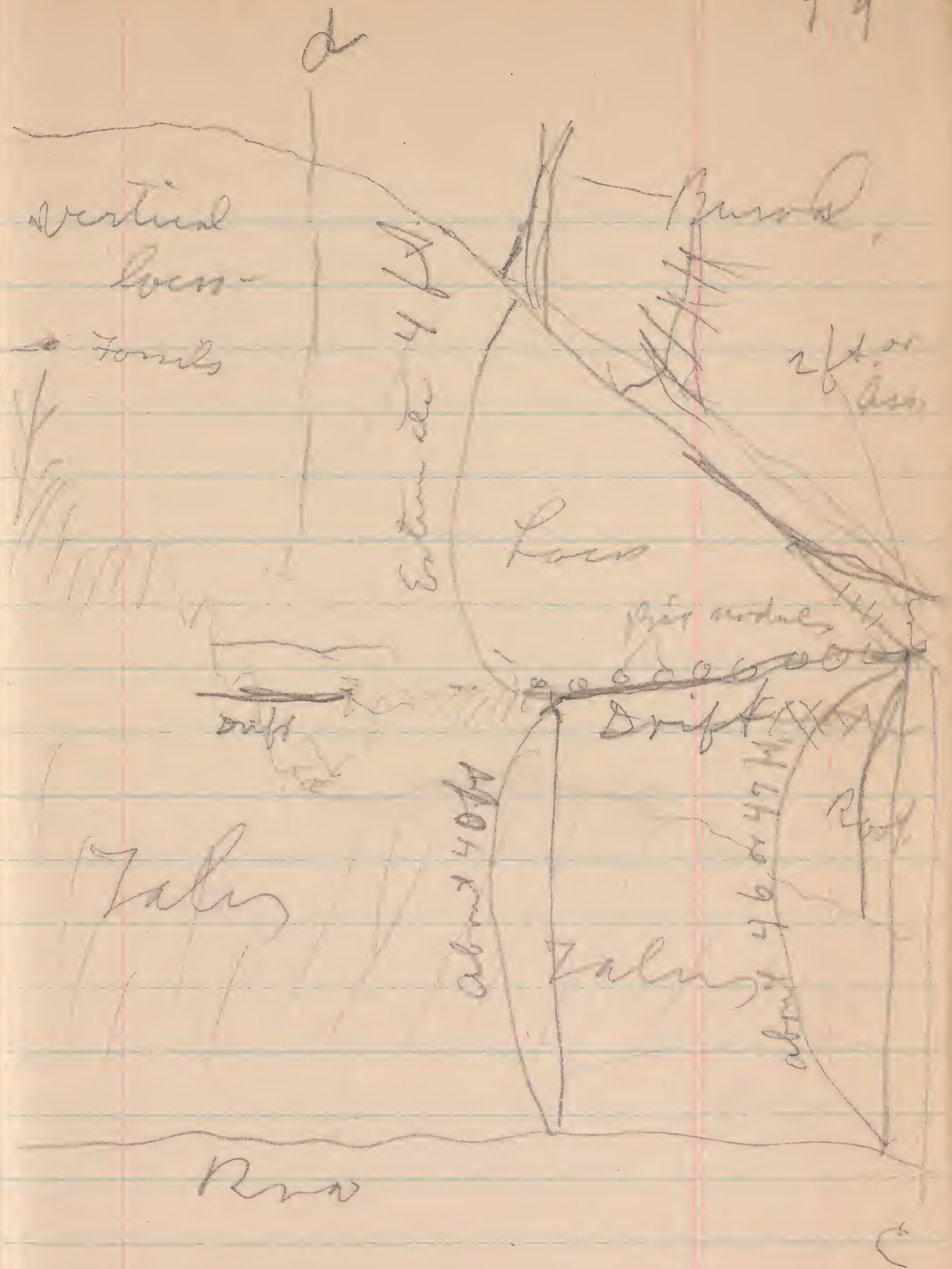
you can
 find it



(over)



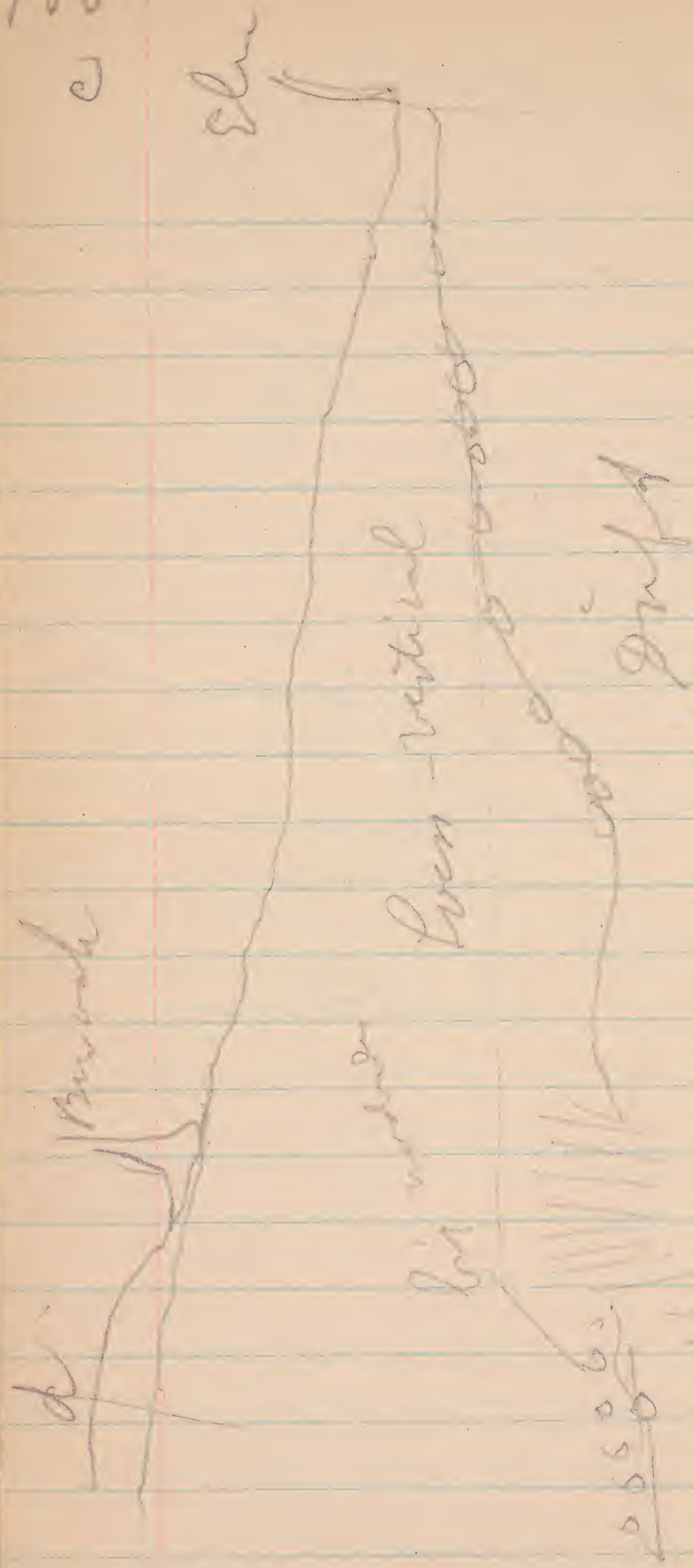
Fossils found in place of
also a good many
scattered about
(See loose spec. of clay)
7 in.



See next page for

c-d.

100
C



101

The smaller N. exposure
also shows drift clearly
below town.

I should estimate at
least 60 ft of loess
in the thickest places.


The hill & the N. rise
probably 40 or 50 ft
higher than top of
highest loess exposure.
This as it appears from
train.

Oct 2, 1904
 Loveland, Ia.

yellowish black streaks
 bluish low
 Fossils & small
 round nodules
 along 70 ft carbon band
 above band 1/4 - 3/4 in thick
 Low fossils -
 higher & gets redder
 below

There were fossils in the
 carbon band - fragments -
 I identified only *Succinea*
aligna?

In this place there
 are clumps
 of one kind, soft
 loam below
 redder loam as at
 (a)



There are no pebbles in
 the upper, fossiliferous
 part of lower loam -
 In places there is no
 carbon, only clayey lime
 shales. - The black loam
 also doubles in surface

The just below bottom of
 just above has more
 iron streaks - Below
 it is almost devoid of them
 above a few others
 given a foot above carbon,
 Below carbon about 3-5
 in.

The lower loam is redder
 on the exposed surfaces,
 but duller (darker) on
 fresh cut. Upper is
 lighter bluish yellow &
 softer. (see nodules
 brown when)

There are fewer fossils in
the upper loess & I
identified only the
larger *Eucrinia* & *Helderia*.

At 45 ft. The lower
loess is hard & uniformly
yellowish (darkish) with
just occasional spots of
lime & no iron.

(See sample & fossils
marked "lower part of
upper loess")

Fossils abundant.

This seems to be about
18 to 20 ft. below carbon
line which extends
"across face of bluff"

Below the loess is a
layer of hard material
(a little darker than loess)
& it has a few pebbles &

in its lower part very
large nodules. It is
not loess - No fossils
(See sample - my label
says "no pebbles" - there
are a few.

Below that is pebbly drift

At very foot of bluff is
a dark blue clay. Is
this Kansan & that above
Iowan or Wisconsin?

at the
Road 0

Top of drift 40 40

Place where I got sample of

pebbly clay 48 48

Lower part lower loess (fossils

& clay) 66 76

Upper part lower loess

(fossils & clay) 75 80

Carbon line 78

55 ft off - horizon below
loess above
(see sample)

(the carbon here must
be about 85)
The top of this bluff
is 140 ft. above
road. To the
N. the hill & bluff
rise not less than
50 ft. more - probably
over)

The upper loess is
loose compact & has
few shells in it.
In the uppermost part
I could see none that
I was sure were not
modern. Near 3 minutes
I found *D. lineata* living.
At the very top
no shells in the lower
loess were found &
many crushed, especially
in land slides.

Arion

A hill rises 150 ft.
above town to W. (or SW)
The lower $\frac{2}{3}$ ~~is~~
drift just like that
at Lanceland (bluish,
yellowish, & red loess)
A trench cut from
top to bottom shows
this well.

About $\frac{1}{3}$ of the way
down from top loess
begins, & thickens
rapidly, so that at
top, where 15 ft. cut
was made, it was
not penetrated.

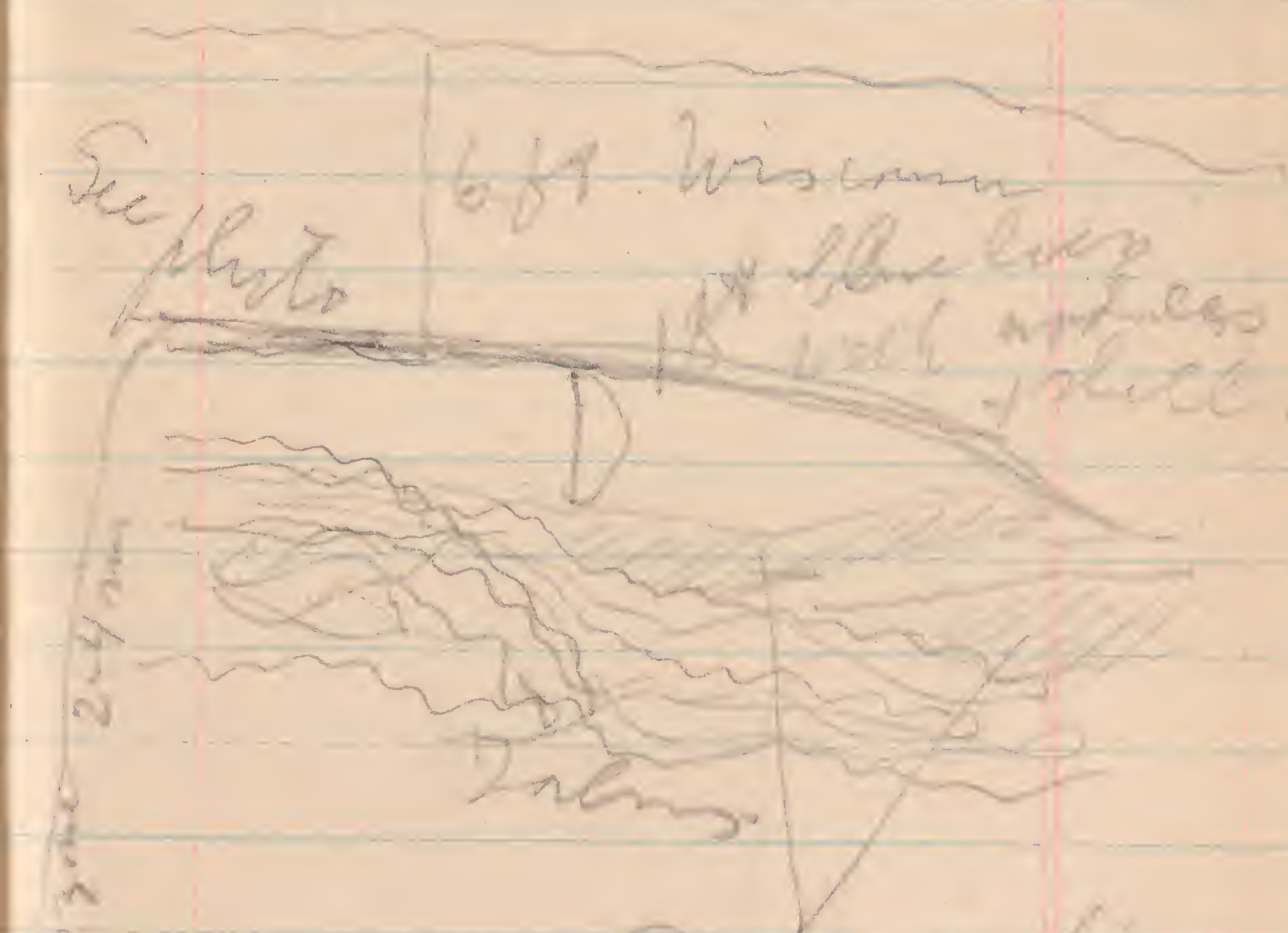
The loess is yellow with
nodules (rounded) (see
samples) - but
at top changes (red
man who dug ^{only on top} it says)
Fossils were abundant
especially in lower part.

throughout



(See Book f - p. 29) 109

Carroll Oct. 3 - 1904
C. & W. cut E. of Carroll
Runs on
at W. end - S. side



A dark, fine,
(See sample) hard, nodular clay - hard - brown.

The face is blue, with
large soft iron tubules (iron roots)
and streaks of iron.

Shells few & fragile.
This has no upper (yellow)
lens.

About 3 rods further
E. & on S. side I
exposed following.

his cousin

Blade brown
with many soft
iron white
small spots

47

Page 114

Feb 11/1907
Rag gumbo

3. alluvial
gravel

about
2 ft exposure

highly below
red drift, lighter
below

Talpa

The lower part of draft
has small pieces -

one of every 3 sampled contained the same
2 or 3 kinds of shells extending up through them.

In the layer just below
these there are dark
carbon like streaks ex-
tending into granular & less
so that in a few inches
these are compressed
the shales down & at
base the drift is quite
bit lighter. Its upper part is
red with iron.

about 3 mts still
further E. the following:

Wisconsin

these
loam
as before

{ black
red
gravel

{ drift

The drift below 2 ft gets
yellow & bluish like
that of Lovelock.
Certainly the same.
This drift has red
angular boulders 4-8 in
a few of them, - just
like Lovelock drift.
Some shells in the loam.

Loam 3-4 ft. -

Wisconsin 3-4 ft.

The Wisconsin line is here
sharper.

about middle of crest, on
S. side: -

Remains of Wisconsin
less than 1 ft.

about 10 ft +

yellow loam - with
numerous iron streaks
& black spots.
Very fossiliferous
& boulders fine

iron streaks 1 ft. 4-10 in. deep
4-6 in.

with large iron blotches
especially at top, &
two streaks of iron
curious vertical drainage
parallel to face of bank.

6-8 ft. Black streaks - gravel

marker drift
like Lovelock

Agassiz

The drift is rather sharply
set off from the glauco-
lous layer, which here contains
a few pebbles as in
lower part of Loveland glauco-
lous sample of each layer.
Kept Jones' reports, &
picked up a lot from
talus. There are undoubtedly
from upper loess, as
those of lower are too
fragile to stand
washing out.

Fossils are very abundant
about the middle of the
cut. Those from W.
end were mostly from
blue loess. - The

Some areas are very abundant
& some of blue? is
more common in the
upper part of the yellow
loess. Found three or
four specimens in middle

(Look back 40 pp. 115
for con. of these
notes)

part of cut where say
is possible) & three were
in a little pocket. all
in upper loess.

The upper loess has
numerous nodules - spherical
in upper part.

The irregular scalloped edge
above blue loess is where
I scraped a little of
yellow loess. It is
in lower part of yellow
loess.

Fossils were found in both
upper & lower iron streaks
in blue loess.

Some layers show on
the side of cut.

Fossils are abundant only
in upper two feet of blue
loess below lower iron bands.
Below that there are black
streaks for 2 or 3 ft, &
this probably belongs

Fossils like much.

to the glauco-lous layer.

July 24 1909
Johnson co

all the territory NW
of SW cor. sec. 17 - Monroe
is Iowa drift. This is
exposed along road, especially
on slopes - at top there
is usually a sandy
loam - thin - & under it
usually a fine sand.

XXXVIII

At SW cor. 17. There is
a coal seam on top - sand
how low, thick - The

country in S. 1/2 of 17 & 18 is
much rougher than that
North, - Round Knob.

XXXIX

In sec. 20 - N. of road (N.E.) the
Iowa drift appears on the
slopes, & the high ridges
are Iowa, but capped
with loam. This is a

At b. on N. side of fork of
road - several feet
3-6, of Iowa drift like
loam, & slightly capped
with loam in part.

The road from fork to
Webb runs over hill
more than 100 ft high.

XL

In the N part of sec.

26. the road shows more or
less sandy & fine gravel.

XLII

Fine sand appears everywhere.

On township road between

Monroe & Jefferson is a hill
very steep & high.

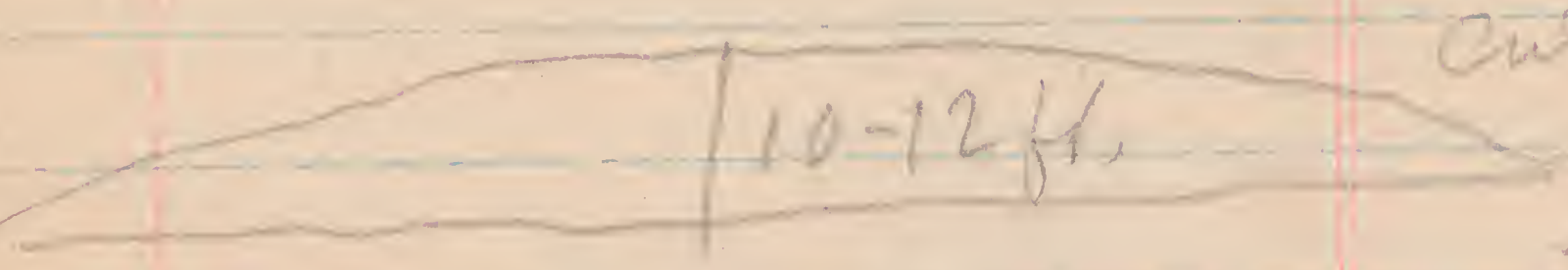
Iowa drift is exposed
all along slope, & has loam
or more sandy trace, at top.

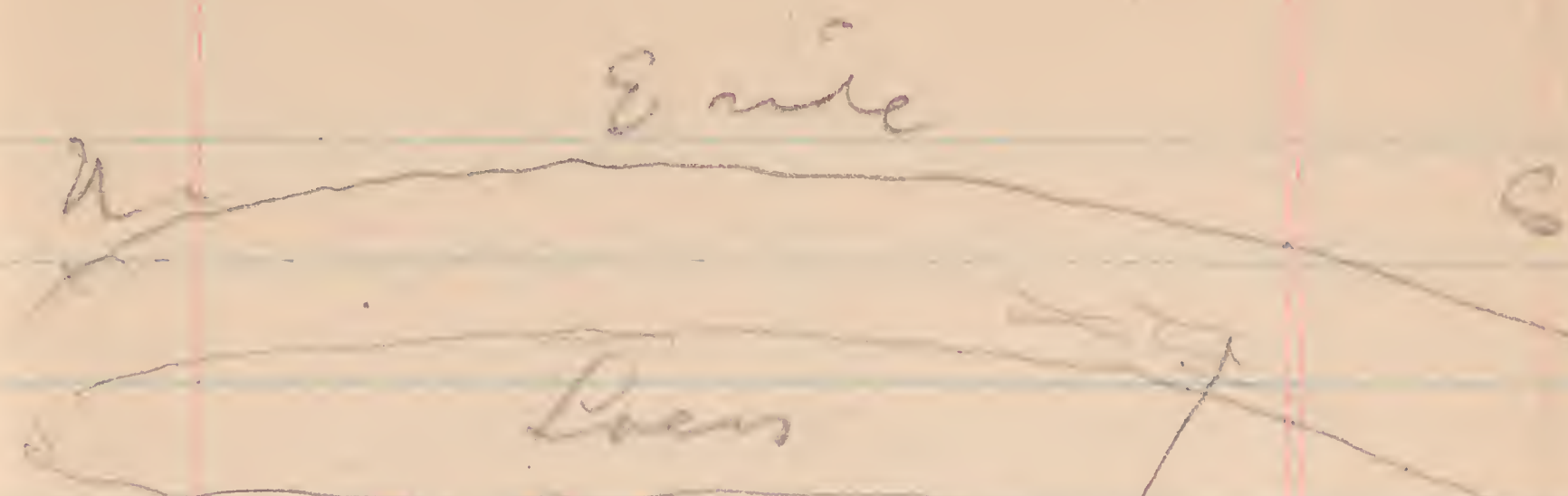
Confal's new cut along
Electric. — going N.

$1\frac{1}{2}$ - 2 ft. new loess (lobules)

fine sand. reddish
4 to 5 ft. oxidized (iron)
streak

about 6 ft. exp. of
blue loess with
fossils & iron streaks

S  10-12 ft. cut
N
w side

E side
 C
Loess

Some of the sand is
laminated with some
parallel bands —

The first cut shows
same arrangement of
sand & loess.

Carroll
Halbur
Manning
Botna
Jewin
Kirkman
Harlan

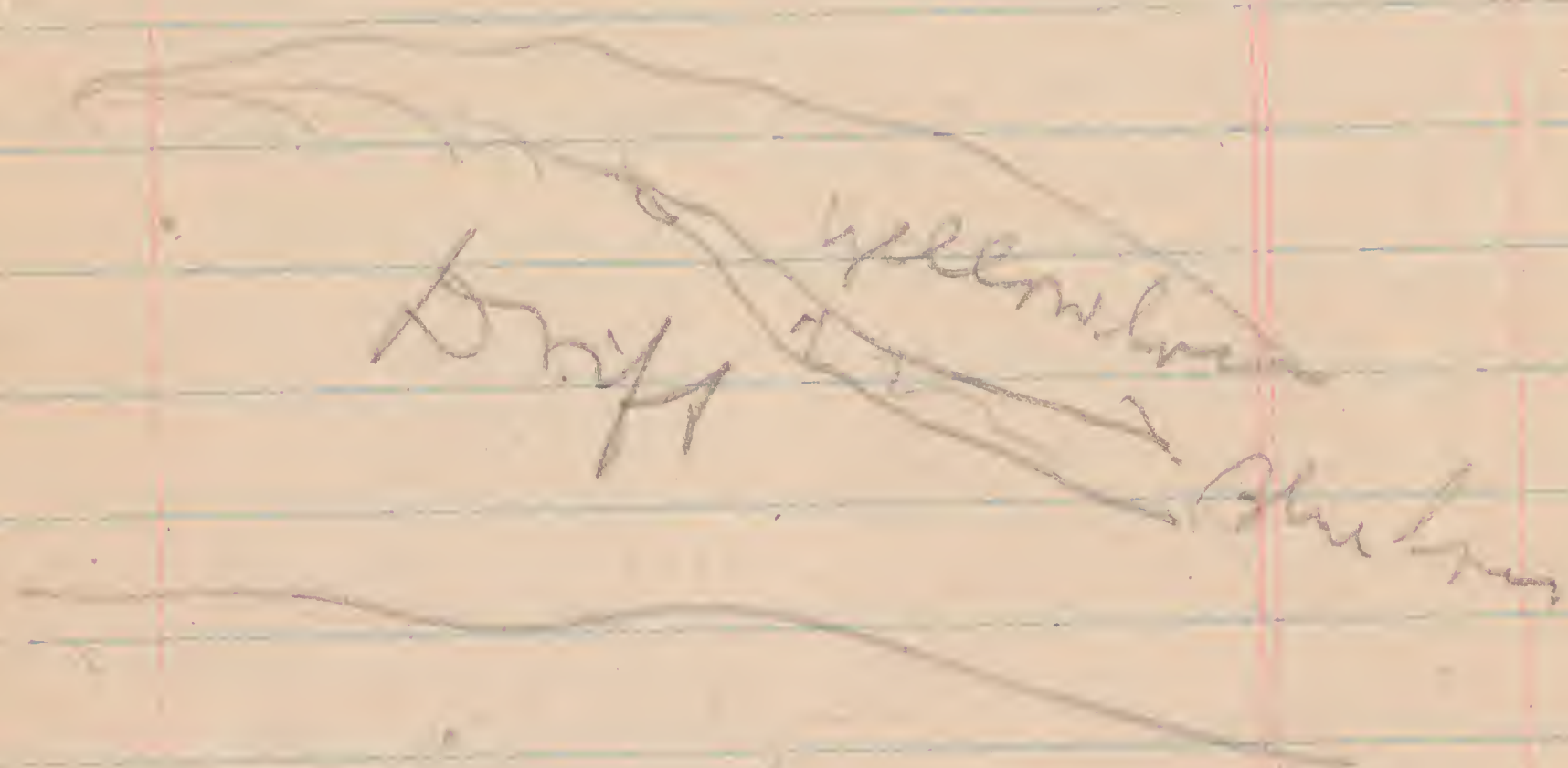
Oct. 3 - 1924

C. Gr. W. Ry.

From Carroll to Harlan

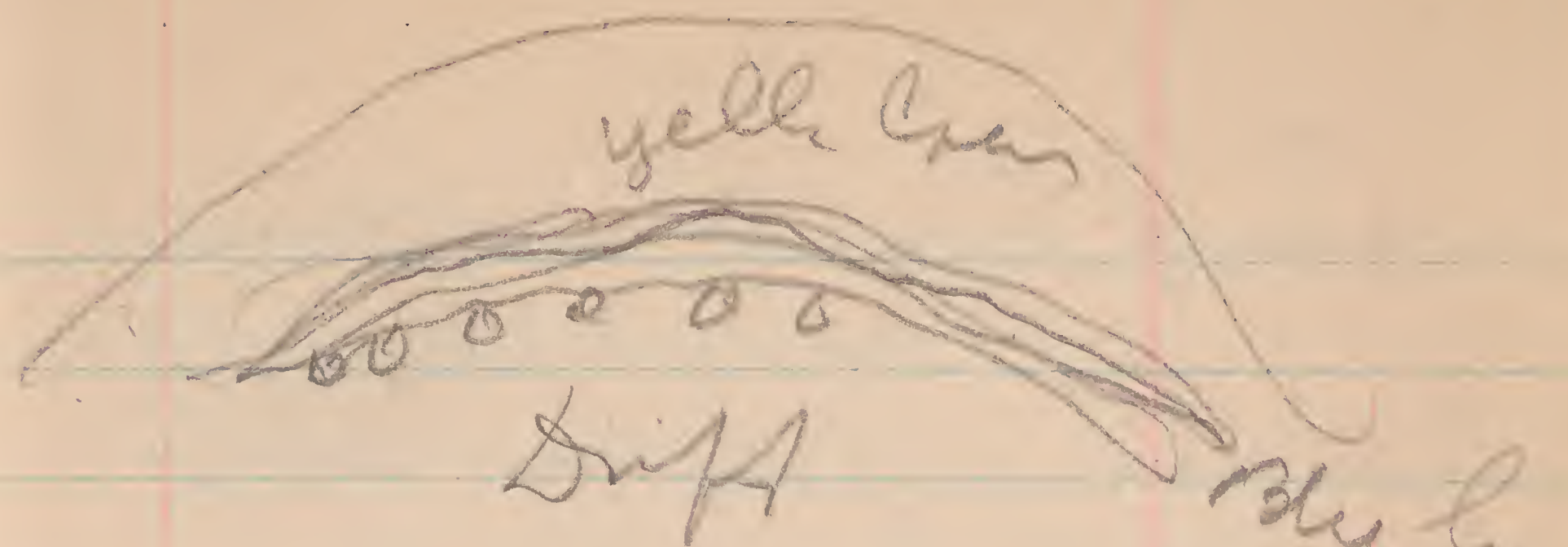
Carroll to Halbur

- 1 Just out of Carroll - my old cut showing two layers
- 2 1 mi out cut shows thin blue loam running out



- 3 A little beyond a cut shows yellow loam in drift.
- 4 Another cut near beyond.
- 5 The next two cuts are
- 6 alike
- 7 (see next page)

123



The drift in one has many boulders along top line.

- 8 Next small cut about same
- 9 " " " " " "
- 10 This is 6 mi out from Carroll. The next is a deeper cut & shows about same with boulders along line.
- 11 Next same
- 12 Next (at overhead bridge) large but not clear
- 13 Next no good
- 14 Next near 2nd overhead bridge - shows drift yellow.

15 Next long & low - not clear
shows drift

16 Next just below road
& next a little
below, are not
clear -

* The last is long &
overgrown - just
before Harbor.

142^{On} Harbor to Manning.

1/2 mi cut - good cut
shows drift, with
boulders on line, &
yellow loess - with
more a less blue
loess.

2nd cut same.

3rd small - not clear.

4th large (overhead bridge)
shows drift, etc. Blue loess

5th & 6th yellow loess thick

7th shale

8th - (a good ways)

Small - grass

8th small - grass.

9th - not clear

10th "

11th small - just after
crossing N. & S. road -
This is within a mile
of Manning.

Manning to Botna

A few cut, no large
ones, & none showing
clearly from east.
Look like yellow loess.

Botna to Irwin

cut 1 (at road) fair

" 2 - not clear

" 3 - loess only?

" 4 - small.

" 5 - "

" 6 - shows red
band & blue loess?

This is about a mile
from Irwin.

" 7 - In Irwin - over depot.
Overgrown -

From Irvine to Kirkman
cut 1-2 - small cuts
near Kirkman (2 mi.?)
cut 3 - in layer & nearby

Kirkman to Harlan
cut 1 - ^{small} in Kirkman - overgrown
" 2 - small - "
" 3 - low - "
" 4 - quite large - "
" 5 - " "
" 6 - " "
" 7 - low - long
" 8 - not clear -
cut 9 - large -
" 10 - low - small
near Kirkman

at Harlan along
C&N.W. RR. CRHP
depos. & along road
leading up town
is a cut 18-20 ft
deep.

The upper 8-12 ft
is yellow loam &
this shades below
into blue loam
with large iron
blotches - Both
have fossils &
a few nodules.
The line between
is not sharp.

See shells & samples of clay.
The shells in blue loam
are more fossiliferous.
This yellow loam is thicker
toward the SW.

The big bank SW
of road has about
6 ft of blue loess
above that about
4 ft of mixed loess
with a lot of black
spots in it & above
that about 15 ft
of yellow loess
with many shells &
a few nodules.
all parts have
shells & the loess
shades up.

Notes. Nov 20/1904¹²⁹

From Eagle Grove to
Omaha - via C. & N. W. Valley
Flat Wisconsin plain
to near Carroll -
In the first cut below
Carroll the Kansan
is strongly oxidized
in most of it over a
ft. & toward S. end
much thicker.

2nd cut ~~just~~ above Harlan show
no oxid. bands below loess.
These are two first cuts
out beyond Harlan
to the North.

1st cut S. of Harlan
On Harlan there are several
(from grove of evergreens S.)
Less than 1 mi. out yellow loess
8-10 ft. deep.

2nd cut - very good covering
3rd " 15-25 ft deep
all yellow loess of porous nodules
(skip next page)

Nov. 17

Ft. Dodge - N. of CRDOP

W. of river

upper drift

Lower drift

~~Black shaly buff~~
~~5 ft narrow~~

~~light gray clay - about~~
~~shall than - and~~
~~fine brick~~

The upper drift is lighter
in color & softer
the lower is joint clay,
hard & with a good
amount dark bottom

(Go back one page)

This cut is only a short distance
beyond no. 2.

4th at $\frac{1}{2}$ mi farther - not
deep - yellow loam.

5th cut $\frac{1}{2}$ mi beyond in 12-
15 ft deep - yellow loam.

6th at overhanging bridge
is deep & large &

N. of bridge shows
red loam at base
modules are plenty -

7th just a little beyond 6th
is lower much & shows
very many modules.

8th a double cut or two
cuts, the lower deep

& large, at 2nd overhanging
bridge. Yellow loam at

9th $\frac{1}{8}$ mi beyond - in 8-
10 ft deep - yellow

loam & modules. This
far beyond at next

overhanging bridge
cut. This is followed

- clay by two more
 10th + Both yellow & with
 11th nodules
 12th - 13th are low cuts
 not far beyond -
 13th another low cut at
 next road crossing.
 14th another low cut
 at next crossing.
 This is less than a
 mile out from Tennant
 15th Low cut at next
 cross road just
 before Tennant.
 16th just beyond Depot at
 Tennant. A long low
 cut - yellow clay.
 at 467 mi
 17 - 8-10 ft deep yellow
 clay - quite long.
 1/4 mile 469 1/4
 18 Low cut just beyond
 but cross road &
 just before 470 mi

- 19th just beyond 470 mi.
 8-10 ft -
 20th 1/4 mi beyond yellow clay
 21 near - beyond yellow clay
 22 - Grayish - not far beyond
 23 - 15-18 ft. clay not
 far from 22.
 24 - Low cut
 25 Deep but short } yellow
 26 Not large } from
 27 at 472 long deep } deep
 and
 28 at weather bridge
 shows much red below
 29 not far shows
 some red.
 30 - Small - before
 cross road. &
 a little short of 474
 31 - Small cut -
 (475) (Meyell station)
 32 - Rather deep - shows
 gray & black clay.

33. Low cut at 2. x 10. road

34. 2 good cut - nodules.
 Potassium some red & 476' (a small cut 1/2 in. by 1/2)
 About 477.

35. Medium cut just beyond 478, (Menden)

36. At 480 - double cut yellow loess.

37. Low small at 481 1/2 (school road at 482)

38. Road beyond 483 + then cut (short) which shows some reddish loess.

Group to 5 ft. from top 39. Near - A deep fine cut

40. " " " " "

41. " " " " "

showing nodules & oxid, 1/2

42. A slight notch to it,

loess

43. Dryer cross road

a large cut.

July 22 - 1904

no. 1

cut XXIX

no. 1 - Dipping - E side road

Top of cut

cut in road 7 ft.

Bored 2 ft + around

sample 1 -

At 10-11 in got Snodgrass

at this point the loess

seems to be a little harder

there are little lumpy

circles.

2nd sample at 12 ft.

(a) fine light material

considerable lime particles

This cut is on N. side of second ridge N. of Dipping.

7 ft

E side road

loess not yet

below loess

When looking the loess near

the top (2-3 ft) shown in perfect

lamination.

No. 2 Cut. XXX

a little ridge just N. of
main road. then a long hollow,
& then a high ridge (= No. 3)
a little ridge, - which
is No. 2. The brown is
near surface. at foot
of hill in gutter on W.
side of road just N. of
main road blue Kansan
is visible. The brown
appears above it. - thin.
then "lobular" loess.

On this small ridge is a
thin veneer of loess about
one on the side, & 4 or 5
ft deep on S. at top
about 1 ft. from surface
took sample No. 2.

cut
XXXI

No. 3 (sample of loess) was
taken near foot of second
higher ridge going N.
The loess was at least 7 ft
deep on this loess.

slope, & showed limestone
irregular surface
would break out the
joints - This is N. of
small ridge, but really on
front of moraine.

Coff

No. 3
morainesmall ridge
No. 2cut
XXXII

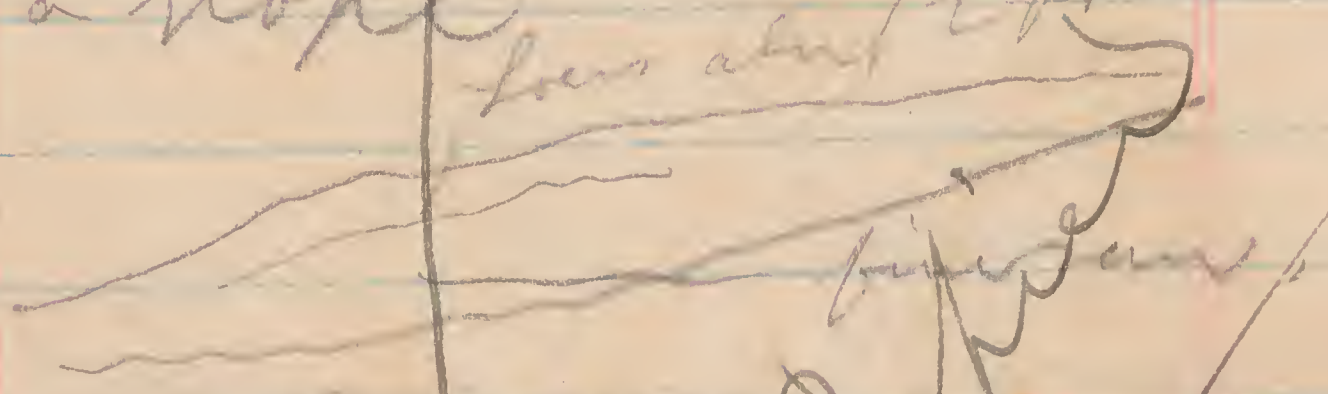
at 4. on S. slope of
long ridge found fine
sand, banded, & much
less iron. Over all
is loess. From
be there on ridge.

cut
XXXIII

at 5 - on Greenwell road
found a veneer of loess, but
a little higher up there is
fine sand. All the sand
is fine - sand dune!

XXXIV One of the highest points
is at no. 6 - and the road
is here sandy, with no cut,
i.e. over the surface.
Near road on lower knolls
& ridges.
All the sand is fine, using
sand-dune material.

XXXV On a side road at no. 7
a slope ^{less about 2 ft}

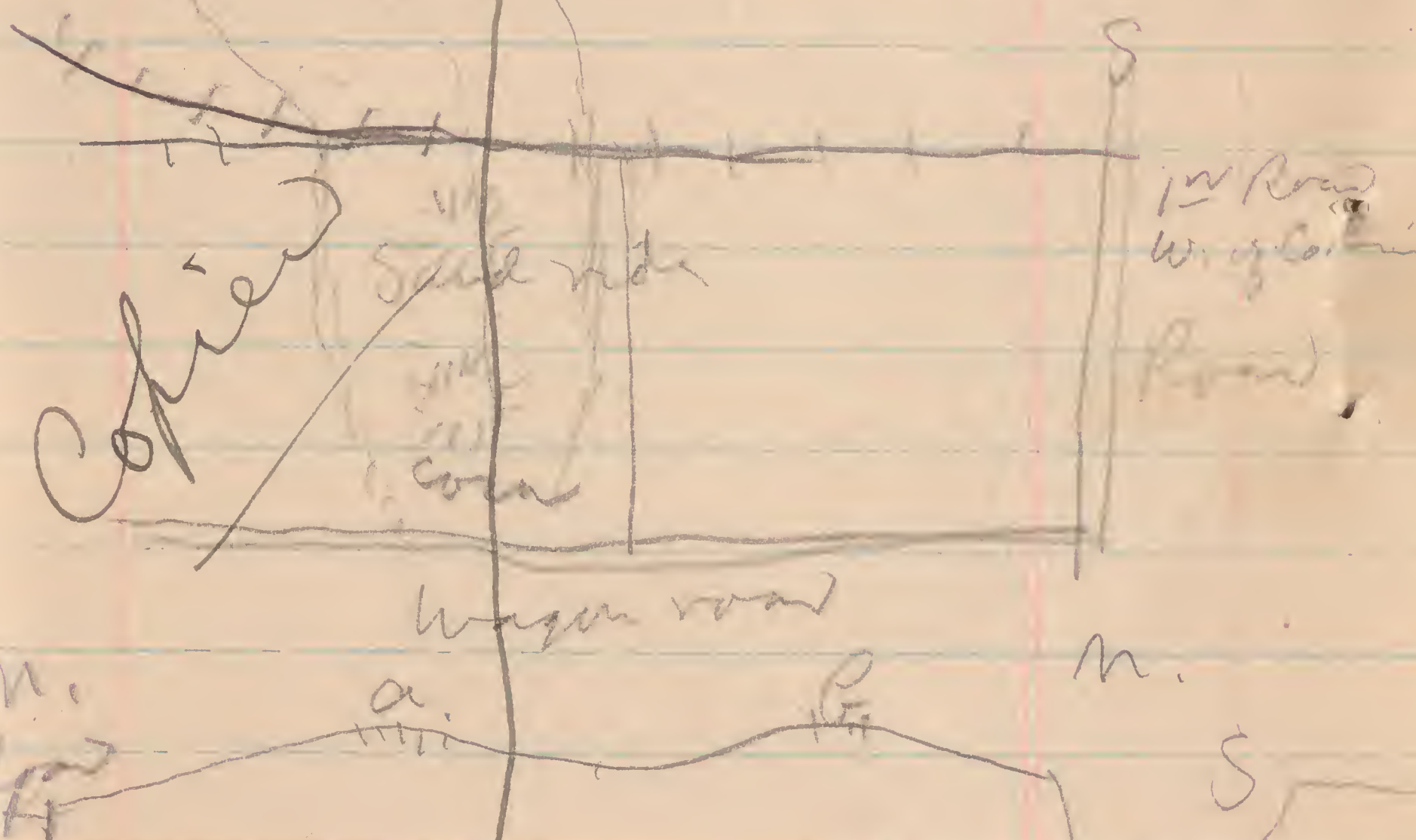


The fine sand ^{changes}
gradually into loess.

Loess appears at surface all
the way to no. 8. At 8

XXXVI there is fine sand again,
with just a little soil like
the transition from fine sand
to loess. The sand is all
fine.

It is sandy into Iowa County
About a mile N. of county
line there is quite a ridge
of sand running N & S.
The first big cut W. of co. line
is through a big sand ridge
of very fine sand.



no. 1 at a & b. are clusters of
of better corn than appears
either between or on S.W.
slopes. On N. slopes
the corn is better. The sand
at top is finer if anything,
& there are more small plants
like young mollusks, etc.

on the surface. On the lower
 slopes the sand is lower & coarser.
 The core at very top is dark
 green, - a fact noticeable
 at a distance.
 The sand ridge is $\frac{1}{2}$ mile or
 less east of the Epson
 house, on the N. side of
 the road.

July 23
 1904
 No. 2. No. 9 in Iowa County
 on W. side road on 2nd side
 of a high bluff
 about 50 ft.

At top for about 6 ft.
 it is low fine sand, &
 scarcely clayey even among
 roots of plants, as if it
 had been a drifting sand
 dune a short time ago.
 Below the sand is Iowa
 drift, it is part clayey
 & gravel, & small boulders
 appear in it.

at foot of bluff, in some time
 is Kansan (blue) drift
 exposed. It forms the bed
 of road -

No. 3. No. 10 is the small rounded
 exposure from which I
 got shells before.

No. 4. No. 11

Iowa drift	
4 to 6 ft.	Iowa drift
2 1/2 ft.	Kansan 1 ft.
	Stanton 10 ft.

The maximum is nearly
 down - The Kansan
 is mostly blue clay - The
 Iowa has a few larger boulders
 The lower is not prominent
 here, but there is even all
 along this margin.
 Took photograph

No. 5

No. 12 is the "Quarry"
at the E. end it shows
tilted carboniferous

465 ft. down from
Kansan 2 to 3 ft.
Carboniferous
10 or 12 ft.

Not much less rubble
For north side with
fossiliferous see also notes
on N. side about 10 ft. of loess
with fossils

4 ft. Kansan

4 ft. Kansan

Carb. rock

Above the Kansan on N. side
is a fine material which
is sandy & dark (brownish). It
grades into loess upward.
See sample #2 & 1 for loess.
Above it this is about 3 ft.
thick. Above it is fossiliferous
loess (see 12b) which grades
upward into "lobular" loess.
Fossiliferous part about 5 or
6 ft. - Lobular part
3 or 4 ft. (see 12c part
lobular) 12a:
The sandy layer is laminated
in real loess manner.
Between the Kansan & lower
there is a hard laminated
(really rocky - so compact is it)
layer with much more
about 1 ft. thick - evidently
an old surface?
Lime nodules are very abundant
on N. side. Loess is bluish below
with iron streaks.

The Kansan drift thins
out so that at W. end of
exposure the lower rests
on the Carboniferous rock -
a little to the east it
appears only ~~about 1 ft.~~
thick. Above it is a
thinly bedded layer
several inches thick.
This corresponds to the
hard laminated layer
already noted on N. side.
This is in all probability
Buchanan gravel.
That sandy layer (clayey) in
upper part of lower shales
upward into loess.

No. 6 No. 13 is being in West
NW 1/4 of Amman Pasture Group
mound no. 5

24

The first nearly two feet
was dark brown stuff -
below that compact greenish
loess into which we

bore 4' 9" & I saw sample
13. The mound was plowed
over & now pastured.

No. 14 - a long ridge-mound in
No. 7 Joe Buck's group of mounds
in sec. 12. Bored. Near
top was loamy, but became
more like fine sand, until
at 7 ft. (see sample 14).
it was quite loose.

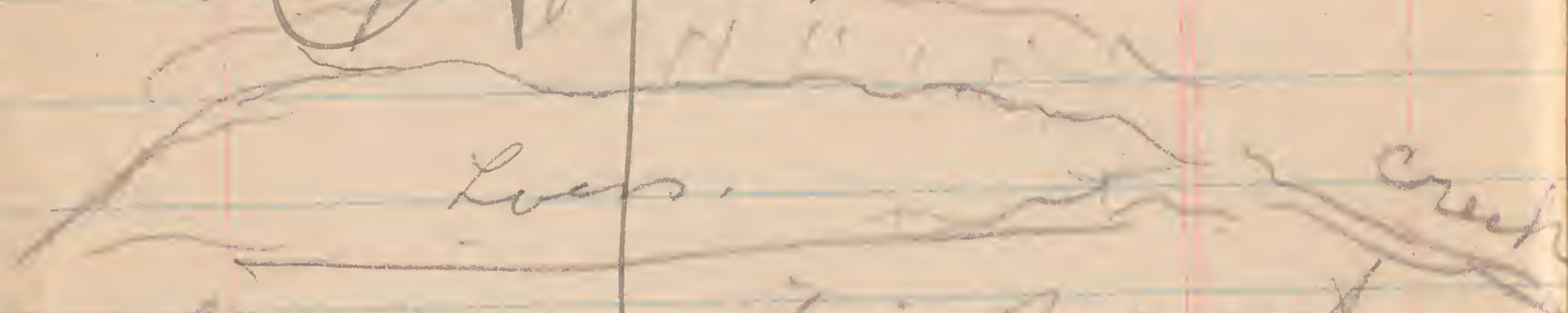
No. 7

Sec. 12 at a - b
- 14
The road runs down
hill & loess appears, but
just a thin veneer. On
plains a little lower
drift, fine gravel, etc.
appear in row.

The highest point at or
near NW cor. Sec. 19 is
120 ft. above river
plain (barometer)

no. 8.

no. 15 - Loess bank - less
than $\frac{1}{2}$ way up hill on
N. side of road opp.
J. Schlichting's barn -
typical loess - Exposure
at 05 ft high



This is a section of a sort
of spur. See nodules, shells.

no. 9 clay.

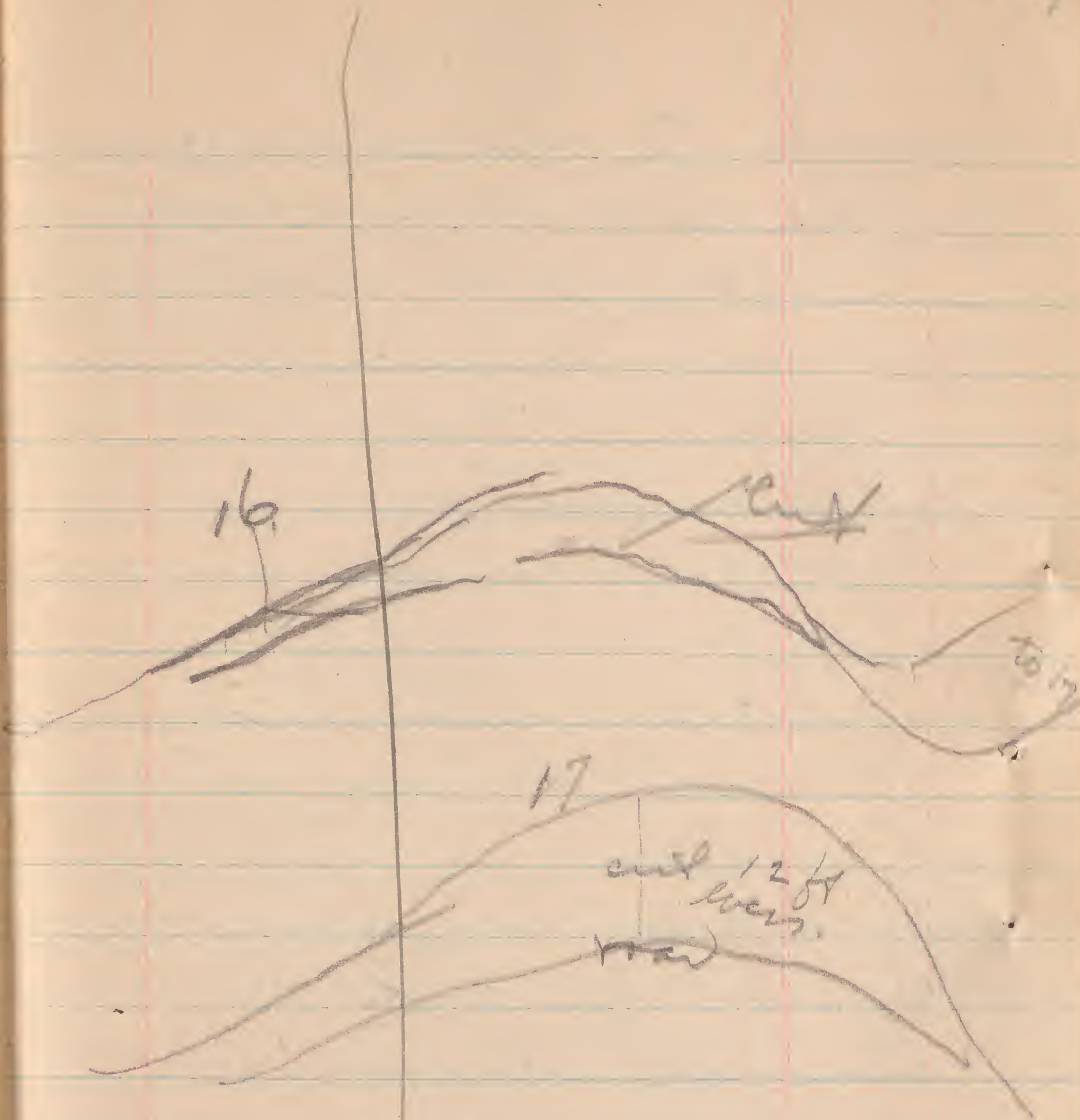
no. 16 is loam like 15,
(see shells) but deeper,
this & next cut are 6 or 8
ft. deep & only loess -
see fossils.

no. 10

no. 17, loess - sharp ridge -
got fossils, very few nodules -
see samples

no. 11

at no. 18 - Javan drift
in road -



new center
In sec. 8. Sandy ridge
has been blown away
about 12 ft. within 20
yrs. - W. F. Brooks chink.
There was timber & this
was blown over & turfs
& blue clay.

No. 12

In S.E. cor. Sec. 10. Loess
appears at surface, but
loam (hard) in next ridge
E. just a little below surface
($\frac{1}{2}$ mile E.) but top of
this ridge was less even.

No. 13

at 19 - low drifts - toward
base of slope with a
little loess - then sandy
in cut in place.

No. 14

No. 20 is a high ridge,
covered with slightly sandy
loess. But gophers
on road bring up fine sand.
The highest point is about

5 or 6 rods - E. & here the
gopher show clay
to the north & W. as
a fine view of Iowa plain.

Just E.

The hill (bluff) at E. Amana
is low & evidently not
morainic. The hills W.

N.W. of E. Amana are
rounded low hills - somewhat
sand-dune in general
form, but not abrupt.

N. or county line the hills
are pretty high, & there
are fine sandy places near
the tops; but the hills are
covered at top with the sandy
loess noted before.

a mile north of Boundary Line road
the hills become less pronounced,
though it is not level.

There is ^{dec. & unfordable} loess, up a point marked
on geol. map of Johnson co -

150

151

152

Oct. 1 - 1904
Blair Bridge

The country plants are
Cottonwood - very com.
Salix longifolia - in low places
Rumex - common -
Sage - not com.
Vig. vine " "
Cornus

The sand which breaks into
plates - like loam.
There were layers of sand
& coarse material, not
at all uniform in thickness.

Within 3 ft of top of highest
dune (25 ft above flat)
I dug in about 1 1/2 ft &
while sand scarcely showed
lamination when pushed
or cut, when broken it
showed it distinctly - Y
The sand sloughed off like loam.

The cottonwood trees in natural grove
are smaller inside than along borders. This
is especially noticeable along road.

153

Oct 1 - 1904
Blair Bridge

The sand dunes
have following plants
Cassia Bowmanii
Erigeron canadensis
Cocklebur
Solanum nigra
Yucca filifera (var. angustifolia)
Cocklebur (Rorippa)
Erigeron

In this dune - a few feet
top, sand is also
sand, - Not very
not laminated, but
when it broke it showed
it. Lamination was
seen -

Water does not get over
these dunes - So that
the beds W. to dunes are
in the dunes.

144

S

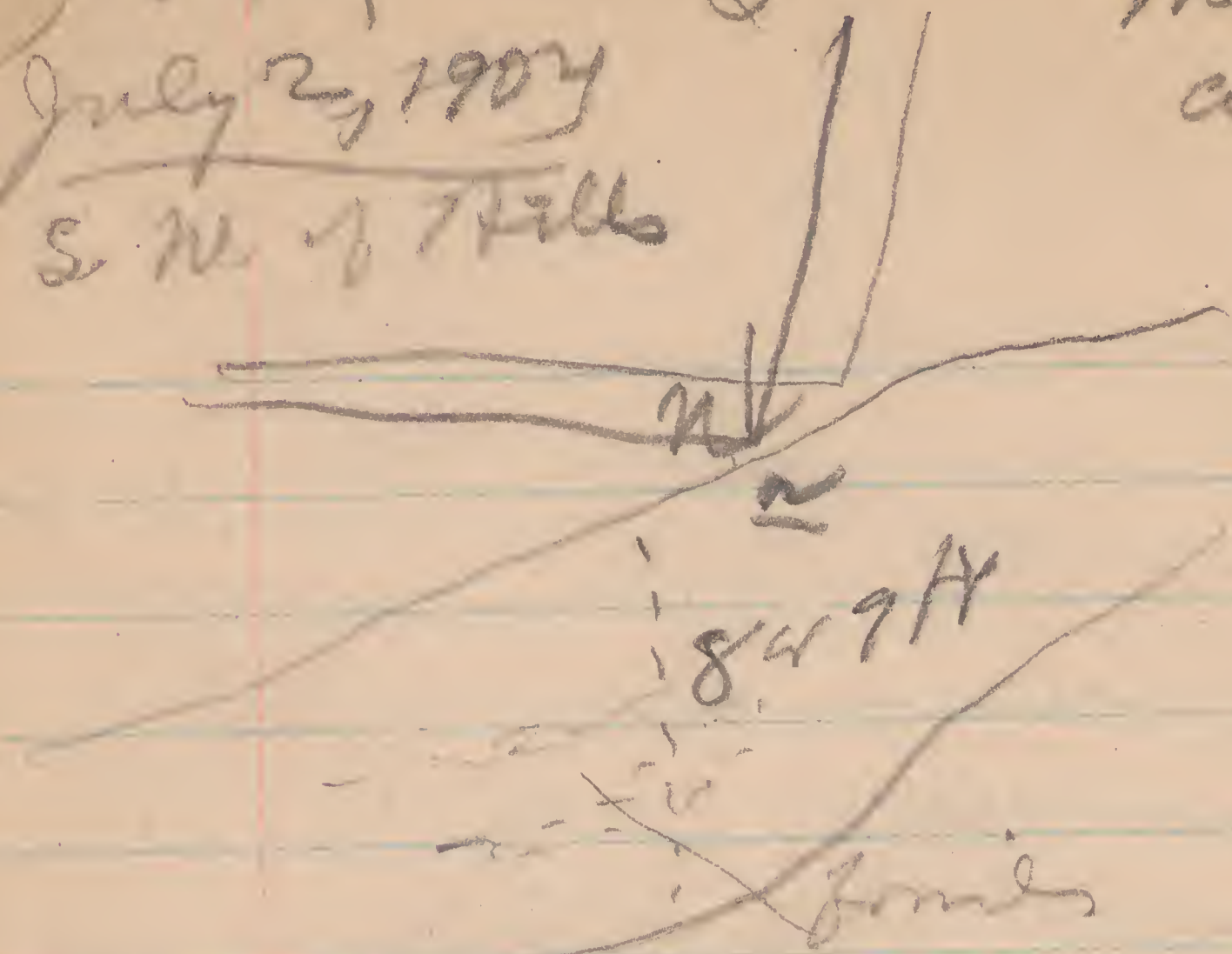
Marked

July 2, 1904

cut XXVIII

S. N. of Hills

on map.



Loam blue, sandy, with
many iron tubes, some just
forming around roots.

Laminar nodules on N. side
more common -

Shells very fragile
Upper 2 or 3 ft yellow
loam - no fossils or tubes
shows imperfect

lamination when broken
Top of bank at (a)

about 12 ft. above bottom

The road N. of Hamilton

is sandy all the way to

the bridge. Most of the way

it is fine sand, but

on top of the highest ridge, just

145

before you start down to the
river, shows small pebbles &
boulders ^{in gutters} - toward drift -
all is overlain with
fine sand & this where
plants are abundant is
quite bog-like.
at the foot of the hill
blue Kansan & dark
boulders appear.

to see if a pine we see
grove - J. Heather -
Wh. Pine, Norway Spruce
Scotch Pine

(See back of pinned
pages - East to West)

44. Next near by - deep cut

45 - " " " " " "

At Freshwater bridge

46 - Shallow right nearly

47 Very large cut yellow
nodules.

48 & 49 Two short cuts

50, A large cut - grayish
below & lower section

above. This is
just before McClellan

51 - A large cut (long) 6-8 ft.
just before depot

52 - Follows closely deeper

53 Shallow - just before
cross-roads.

54 - Large cut -
at 488.

55. A large cut just
beyond

56 - Medium cut

57 - Shallow

58 - Large cut at 489

59 - Low cut beyond cross road

60 -

61 "Deep" cut - near -

Just before cross-roads

62 Low cut

63 Very low cut

64 - at 491 - deeper cut

65 Low cut just beyond, just
before road.

66 Just beyond road - low
cut - (very low)

(Station stop) Gilliat

67 - Medium cut 8-15 ft.

Gets deeper - yellow
dry cut - same nodules

68 - A good big cut

69 - Shallow

70 - Medium - just beyond
cross road

71 - Fine cut - grayish
below

72 - Fine cut -

73 - Very deep cut - red
below 393 7/8

Miss Margaret Sleser
318 Vine St. Travers City, Mich

- 74 Just before 394 at
overhead bridge
good cut
- 75 Next, near my
large reddish blue.
- 76 - Small near
- 77 " - red blue
- 78 near large yellow.
- 79 Big deep cut
- 80 Small cut.
- 81 at 496 near
deeper cut
- 82 - Near short deep.
- 83 " " "
- 84 " - medium
- 85 " - short - deep.
- right at Gillies -
just N. of station
- 86 Low cut - gets larger
beyond deposit -
large - nodules.

- 87 - Near Deep short - nodules
- 88 Quite large - double
- 89 Along deep - short
- 90 " " " over 33
- 91 " " "
- 92 " " "
- 93 " " "
- 94 " " (large)
- 95 " " "
- 96 " " "
- 97 { all these are
- 98 { deep & large
- 99 { rather short
- 100 { all these are
- 101 { deep - large
- 102 { medium -
- 103 large -
- 104 - very small -
- small
- 105 - large - deep
- 106 Medium - large
- 107 Short deep
- 108 - deep large beyond road
- 109 - 110 Overlook - a. Bluffs

Mr. Gaskell
 Ex. Forester - St. Louis

Lat Pine - + charcoal
 Review

Japan - words. film
 dies -

Georgia - Turpentine
 words.

Argentina -
 words -

Plumery 1902
 at Ames
 He is in the (for lunch)
 in Dublin, in the
 evening lunch.

West Cary a copy

